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THE ENDOCRINE THERAPY OF OVARIAN FAILURE.

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Many aberrations in the function of the female sexual system have been related, by fact or by theory, to alterations in ovarian function. The result often has been the institution of a generous, enthusiastic and oftentimes uncritical organotherapy of the woman without the establishment of the diagnosis of ovarian failure. The existence of ovarian failure has been presumed commonly from the following symptomatology: vasomotor instability, headache, dysmenorrhea, irregularities of uterine bleeding, sexual incompatibilities such as frigidity, dyspareunia or vaginismus, sterility, nausea and vomiting of pregnancy or repeated spontaneous abortions. Further confirmation of impaired ovarian function has been considered to be the non-existence of organic pathology as revealed by a cursory diagnostic study. The presumptive diagnosis of ovarian failure has been further substantiated oftentimes by the enthusiastic advances of representatives of various pharmaceutical concerns eager to promote the sales of their respective products. The perpetuation of these three misconceptions concerning ovarian failure constitutes a picture of gynecic organotherapy at its worse.

Diagnosis of Ovarian Failure

The rational therapy of ovarian failure is dependent upon the establishment of a correct diagnosis. The diagnosis of ovarian failure embraces three important facets, none of which is always easy to attain: (1) proof that the function of the ovaries is impaired; (2) the degree and the nature of the impairment; and (3) segregation of the etiological factors underlying the ovarian failure. The prognosis and the therapy will be defined by these diagnostic data.

There are three established symptoms and signs of marked ovarian failure, none of which necessarily impairs health: (1) failure of occurrence or cessation of menstruation; (2) non-occurrence of sexual maturation or eventual regressional changes in the sex organs; and (3) impaired fertility or sterility. That the symptomatology ascribable to ovarian failure does not impair health is noted in the two physiologic epochs of relative hypo-ovarianism: pre-adolescent hypo-ovarianism and post-climacteric senescence. The majority of women effect the diverse emotional, psychic and endocrine readjustments of the climacteric without the development of symptomatology sufficiently severe to interfere with their normal mode of living or to demand endocrine therapy designed to regulate the transitional alterations.

Pertinent information elicited from the history often establishes the diagnosis of ovarian failure, e.g., surgical extirpation of both ovaries, functional ovarian failure induced by roentgen-ray or radium, persistence of the non-development or retardation of the sexual system with delayed menarche in patients of post-adolescent or adult years, and the onset of the menopause in a woman of climacteric age. On the other hand, the assumption of the non-existence of ovarian failure is permitted when a woman is able to conceive, for the ability to become pregnant is the most reliable objective evidence of adequate ovarian function.

The diagnosis of ovarian failure is chiefly qualitative in nature, quantitative estimations of instances of relative or low grade ovarian function not being permitted by present diagnostic data. Two grades of ovarian failure may be determined: (1) corpus

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2. Presented by one of us (E.C.H.) at a meeting of the South Piedmont Medical Society, Danville, Va., April 16, 1941, and at a meeting of the Norfolk County Medical Society, April 28, 1941, the announced title for the latter presentation being "The Diagnosis and Treatment of Endocrine Sterility of the Female".

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luteum failure (accepted generally to indicate failure of ovulation); and (2) estrogenic failure as denoted by inadequate estrogenic (follicular) activity for the development and the maintenance of the sexual organs and subsequent occurrence of uterine bleeding.

Corpus luteum failure may be determined by two criteria: (1) endometrial biopsy; and (2) pregnandiol titers. From the practical viewpoint, the endometrial biopsy represents the most efficient and simple diagnostic procedure for the determination of ovarian sterility, as manifested by failure of ovulation. Small representative portions of the endometrium are sampled by punch biopsy or suction within twelve to twenty-four hours after the onset of a spontaneous episode of uterine bleeding. These are fixed, mounted and stained by the usual hematoxylin-eosin method. If microscopic study reveals the absence of progestational (secretory) response in the endometrium with the persistence of the estrogenic (interval) phase, presumptive evidence is established that ovulation and corpus luteum activity have failed. It must be emphasized, however, that many women normally experience two to five anovulatory cycles each year. Repeated consecutive biopsies, therefore, at the onset of bleeding are necessary to establish significant existence of corpus luteum failure.

The determination of the urinary excretion of pregnandiol (an excretionary product of corpus luteum metabolism) as quantified on daily twenty-four hour specimens of urine during the fourteen days immediately prior to the onset of bleeding, adds complemental data to that secured by endometrial biopsy. Significant departures from the normal level of 45 to 55 mg. per cycle may indicate diverse grades of corpus luteum failure. That this procedure of hormonal titration does not afford routine clinical application is apparent in view of its time-consuming, technical and costly propensities and because of the many variables which render difficult the interpretation of results.

The diagnosis of estrogenic failure considers these objective criteria: (1) non-occurrence or incomplete development of sexual maturation or secondary regressions in sexual organs; (2) abnormal anthropometric measurements resulting from the non-union of the epiphyses in the adolescent form of hypo-ovarianism; (3) peculiarities of body habitus, ascribable chiefly to abnormalities in fat deposition; (4) altered epithelial responses, denoted chiefly by atrophic or regressive changes of the vaginal epithelium as determined by smears or biopsies, or persistent estrogenic or atrophic characteristics of the endometrium as revealed by biopsy; and (5) decreased urinary titers of estrogens, the onerous nature of hormonal titrations in general having been stressed with respect to pregnandiol determinations.

Alterations in the cyclicity and character of uterine bleeding cannot be accepted necessarily to indicate ovarian failure. Minor irregularities of uterine bleeding may occur without significant impairment of fertility. Amenorrhea persisting for several months, pregnancy having been excluded, may indicate significant ovarian failure.

CAUSE OF OVARIAN FAILURE

Segregation of the various etiologic factors contributing to ovarian failure permits differentiation into two general groups: (1) extra-endocrine and (2) endocrine causes. The determination of the diverse causes indicates the therapeutic approach.

Extra-Endocrine Causes embrace: acute and chronic debilitating diseases; inanition and vitamin deficiencies; various emotional and psychic disturbances; environmental changes, with particular respect to altitude and climate. The alterations in ovarian function are most likely attributable to indirect effects on the pituitary-ovarian axis mediated via the pituitary gland.

Endocrine Causes may be reviewed briefly:

(1) *Intrinsic Ovarian Failure:* The ovaries are refractive to pituitary stimulation or incapable of yielding a physiologic response due to (a) developmental inadequacy; (b) incomplete puerperal recovery; (c) local pelvic disease; (d) premature senescence; (e) physiologic immaturity or senility; (f) damage from roentgen-ray or radium or (g) removal by surgery.

Inasmuch as the pituitary function remains at a normal or somewhat increased level, gonadotropic therapy (gonadal activation or stimulation) is irrational. Time and local gynecologic measures may permit the recovery or development of ovarian receptivity. Failing in spontaneous recovery of ovarian responsiveness, substitutional therapy at the ovarian level is the only effective treatment; this form of therapy will not circumvent the sterility of the patient.

(2) *Ovarian Failure Due to Hypofunction of the Pituitary:* Pituitary deficiency due to diverse causes,

such as tumors, invasions, intrinsic inadequacy and alterations of pituitary function secondary to peripheral influences (extra-endocrine factors) does not permit adequate gonadotropic activation for normal ovarian responsiveness. The therapeutic employment of equine gonadotropins and chorionic gonadotropins is rational.

(3) *Ovarian Failure Due to Pituitary Disturbances resulting from Thyroid or Adrenal Disease:* Varying alterations of pituitary function induced by fluctuations in thyroid function, either in the form of hyperthyroidism or hypothyroidism, may adversely affect ovarian activation and responsiveness. The indicated medical, surgical or roentgenologic therapy of the thyroid disturbance represents the rational therapeutic approach for this form of ovarian failure.

Adrenogenitalism, resulting either from tumors or hyperplasia of the adrenal cortex, may impair ovarian function by a two-fold mechanism: (1) indirect alterations of the pituitary-gonadal axis mediated via the pituitary; or (2) peripheral estrogenic-negating responses induced by the excessive androgenic substances. Adequate surgical therapy of the adrenogenitalism constitutes rational treatment and may permit the return of ovarian function.

(4) *Ovarian Failure Due to Diabetes Mellitus:* Ovarian failure in diabetes mellitus is attributed usually to alterations of the pituitary-gonadal axis induced by the accompanying cachexia and metabolic disturbances. Standardization of the diabetic state by adequate insulin and controlled diet usually corrects the ovarian failure. Persistence of the ovarian failure in a well-controlled diabetic may be explained on alterations in the ovarian vascular supply due to arteriosclerosis.

(5) *Ovarian Failure Due to Altered Metabolism Resulting from Thyroid or Adrenal Diseases:* Alterations in metabolism of the ovaries secondary to disturbed oxygen metabolism ascribable to thyroid deficiency or to faulty electrolyte, water and glucose metabolism indicative of cortical adrenal failure, are expressed by endocrine failure of the ovaries or germinal failure, characterized by the discharge of blighted or imperfectly formed ova. Adequate thyroid therapy usually assures the return of ovarian function in hypothyroid states. The efficacy of cortical adrenal extract or desoxycorticosterone acetate in the therapy of ovarian failure secondary to Addison's disease has not been established.

(6) *Ovarian Failure Due to Gametopathic Factors:* Both the non-endocrine factors and the endocrine alterations described in types 1-5 may result in the formation of ova incapable of fertilization or of normal embryonal development. The therapy of this gametopathic condition is indicated by the cause.

(7) *Ovarian Failure Due to Endometriopathic Factors:* Inasmuch as the endometrium is concerned with adequate metabolism, utilization and excretion of ovarian hormones, alterations in endometrial function may effect pronounced disturbances in ovarian function. Such disturbances in pituitary-ovario-endometrial reciprocities may be mediated by depression of the gonadotropic principles of the pituitary or by faulty ovarian sterol metabolism. Therapy either by curettage or cyclic estrogen-progesterone therapy is designed to re-establish ovario-endometrial relationships by the production of ample endometrial response capable of effecting adequate metabolism of ovarian principles. Considerable irreparable destruction of the endometrium by tumors or fibrosis does not permit therapeutic salvage of ovarian function.

TREATMENT OF OVARIAN FAILURE

Thorough diagnostic exploration for the diverse etiologic factors producing ovarian failure often delineates the therapeutic approach. Correction of the extra-endocrine factors, as removal of foci of infection, stabilization of the general body metabolism, i. e., reduction of obesity or ample caloric intake for leanness, medical therapeusis of acute and chronic debilitating states, correction of anemic levels, constitutes rational and effective therapy of ovarian failure.

There are three general indications for the endocrine therapy of ovarian failure *per se:* (1) completion of sexual development and maturation in adolescent failure either for the correction secondarily of cosmetic inelegance or for circumvention of anticipated sterility; (2) therapy of undesired sterility in adult ovarian failure; and (3) treatment of diverse irregularities of uterine bleeding, particularly menometrorrhagia, in which the correction of the hemorrhagic tendencies is governed by desire to circumvent existing sterility. In that connection, fractional doses of intra-uterine radium is efficacious therapy for menometrorrhagia in the adult in whom existing sterility is not undesired and in whom careful gynecologic studies establish the ovarian failure to be due to endocrine disturbances.

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Adolescent Ovarian Failure—characterized by anthropometric discrepancies suggestive of non-union of the epiphyses with resultant overgrowth of the long bones, retarded or incomplete development of the sexual organs and delayed menarche—is due chiefly to four causes: (1) inanition from dietetic faults or cachexia from acute or chronic diseases; (2) childhood and pre-adolescent hypothyroidism; (3) intrinsic ovarian inadequacy; and (4) childhood and pre-adolescent hypopituitarism. The diagnosis and treatment of the first two classes is relatively satisfactory. Differentiation of the last two groups, i. e., those instances of ovarian failure due to intrinsic ovarian refractivity or those due to inadequate gonadotropic stimulation from the pituitary, is somewhat more difficult, inasmuch as adequate clinical tests for evaluation of pituitary function are lacking. Occasionally, presumptive differentiation is permitted by the endocrine survey; retardation of general somatic growth is suggestive of pituitary deficiency, whereas overgrowth of the long bones noted by increased measurements of the span over the height and the lower measurement (from the symphysis pubis to the soles of the feet) over the upper measurement (from the symphysis pubis to the head) implies no deficiency in growth hormone (pituitary), but does indicate delayed epiphyseal closure due to hypo-ovarianism.

In the absence of clinical findings which will permit differentiation of ovarian failure due to pituitary deficiency or to intrinsic ovarian-non-responsiveness, therapeutic trial with gonadotropic substances will effect the diagnosis. Those patients responding to stimulational (gonadotropic) therapy may be considered to be deficient in pituitary activation, whereas those not responding to therapeutic employment of the gonadotropins may be assumed to have intrinsic ovarian refractivity. In that connection, it must be emphasized that only those instances of ovarian failure which respond to gonadotropic therapy may anticipate ultimate gametogenic salvage and that those patients demanding substitutional therapy at the ovarian level, while effecting recovery of the endocrine manifestations of the hypo-ovarian state, will not obtain salvage of the existing germinal failure.

The therapeutic regime for pituitary substances is as follows: Inasmuch as no potent commercial preparations of the anterior lobe of the pituitary have been prepared, the pituitary-like gonadotropin of the pregnant mare serum* is employed. Prior to the initiation of therapy, the patient is skin tested for allergic responses. If negative, 400 to 800 I. U. of equine gonadotropin are administered intramuscularly every two days for a period of six weeks. Usually two such series of therapy are administered, an intervening rest period of six weeks being instituted between the series. The rest period prevents the development of refractory substances or antibodies to the pregnant mare gonadotropin. Positive evidence of favorable response is usually obtained with the first series of therapy if it is to be received. If no response is obtained to two series of gonadotropic therapy, it may be assumed that no pituitary deficiency exists and that intrinsic ovarian refractivity underlies the ovarian failure. Substitutional therapy with ovarian principles is then indicated.

During the course of gonadotropic therapy, certain objective data indicative of estrogenic stimulation should be observed at periodic intervals, preferably every week or ten days: bimanual examination (usually rectal) to determine the size of the ovaries, uterus and cervix; responsiveness of the vaginal epithelium as determined by vaginal smears; depth and diameter of the vagina as determined by sounding or pelvic examination; consistency and size of the breasts; and hormonal titrations for excreted urinary estrogens. Occasionally, cystic responses of the ovaries occur during therapy. Treatment should be discontinued until the cystic condition subsides and resumed later at lower dosage levels.

When positive responses to gonadotropic therapy are experienced, the therapeutic regime is continued, selective rest periods being advised to prevent antibody formation, until late adolescent growth of the sexual organs (vagina, uterus, tubes and ovaries) is obtained. Episodes of uterine bleeding may occur, permitting endometrial biopsies to be secured. If the endometrial response is progestational, complete ovarian salvage may be assumed and all therapy discontinued. Another biopsy is taken at the onset of bleeding in the following month in order to demonstrate the spontaneous character of the ovarian function. A similar procedure is advisable in instances in which the endometrial response is estrogenic in nature. In that connection, salvage of the ovarian sterility may be permitted by the system of 1-2

*Available commercial preparations are: gonadogen (Upjohn); anteron (Schering); and gonadin (Cutter).

gonadotropic therapy to be noted below. If the patient responds favorably to gonadotropic therapy, complete physiologic salvage of the adolescent hypo-ovarianism may be obtained rapidly within six to twelve months.

In those instances of adolescent hypo-ovarianism wherein favorable response to stimulational (gonadotropic) therapy is not obtained, substitutional therapy with ovarian principles is indicated. This form of therapy, while permitting satisfactory endocrine responsiveness, possesses several limitations: (1) Substitutional therapy cannot circumvent the existing sterility; germinal failure can only be corrected by stimulational therapy. (2) Inasmuch as the beneficial effects of substitutional therapy are temporary, indefinite administration of the ovarian principles, estrogens and progesterone, is prohibited by the present expense of such a therapeutic regime. Clinical employment of the cheap and potent oral estrogens, as stilbestrol, is contingent upon ample proof that such preparations are free from diverse toxic or carcinogenic effects when administered for long periods of time. (3) Upon cessation of therapy, the genital growth induced by estrogenic substances tends to regress.

The indications for limited employment of substitutional therapy may be considered briefly: (1) Adequate estrogenic therapy may result in epiphyseal closure, thereby curbing excessive growth of the long bones and the resultant cosmetic inelegance characteristic of adolescent hypo-ovarianism. (2) Sufficient genital growth may be induced by estrogeinc therapy to permit responsiveness to gonadotropic therapy. Further trials with gonadotropic therapy are advisable when genital development has resulted from estrogenic therapy in order that complete ovarian response may be obtained. (3) Limited therapeutic employment of the substitutional regime maintains the peace of mind of the patient by convincing her of the clinical ineffectiveness of the treatment. Doubtlessly, the cosmetic alterations attributable to hypo-ovarian states may be more satisfactorily treated by flattering brassieres, attention to styles and fitting of garments designed to compensate for the lack of feminine contour, than by prolonged, ineffectual estrogenic therapy.

The regime for substitutional therapy designed to produce sexual maturation is as follows: 1 to 2.5 mg. (6,000 R.U. to 15,000 R.U.) of estradiol benzoate† or estradiol dipropionate‡ is administered intramuscularly every two or three days for an initial series of therapy limited chiefly by genital response, expense and the doctor's enthusiasm. Evidence of possible renal damage is checked by periodic urinalysis. As satisfactory sexual maturation is induced, the dosage may be lowered gradually and, if bleeding ensues, given in accordance to a cyclic pattern simulating the normal menstrual cycle. In that connection, the regime of cyclic estrogen-progesterone therapy to be described below is satisfactory.

Therapy of hypomastia *per se* may be limited chiefly to the local application of an estrogenic ointment containing 0.5 mg. estradiol benzoate (3,000 R.U.) to 4 grams (one drachm) of ointment, the base being lanolin-petrolatum. Four grams (one drachm) of ointment is massaged thoroughly into the mammary area each evening before retiring. Although the estrogenic effects primarily are local in character, some general effects may occur.

Adult ovarian failure occurring during the reproductive period may be attributed generally to five general factors: (1) inanition from inadequate diet or cachexia resulting from acute and chronic debilitating diseases; (2) hypothyroidism; (3) intrinsic ovarian failure; (4) endometriopathic factors; and (5) pituitary deficiency. The diagnosis and treatment of the first two causes, i. e., the extra-endocrine factors and the hypothyroid state, is usually satisfactory.

Whereas the rational therapeutic approach to adolescent ovarian failure is initially with stimulational (gonadotropic) therapy in order to test the intrinsic receptivity of the ovaries, the therapeutic approach to adult ovarian failure presumes the existence of endometriopathic inadequacy until proven otherwise. The same pertinent limitations of substitutional therapy noted in the adolescent form apply to the adult type of ovarian failure.

The cyclic employment of estrogen-progesterone therapy possesses value in the correction of certain endometriopathic factors, as well as the conservative control of functional menometrorrhagia in which preliminary hemostasis has been secured by intensive

†Available commercial preparations of estradiol benzoate include progynon-B (Schering) and ben-ovocylin (Ciba).

‡Estradiol dipropionate is obtained as di-ovocylin (Ciba) and progynon D.P. (Schering).

estrogenic therapy or curettage. The details of the cyclic estrogen-progesterone regime may be described briefly: at the conclusion of an episode of uterine bleeding, estradiol benzoate in doses of 0.3 mg. (2,000 R.U.) is given intramuscularly every two days for a period of ten days; immediately thereafter, estradiol benzoate 0.3 mg. (2,000 R.U.) and progesterone* in doses of 5 mg. are given simultaneously every other day for another ten days. All therapy is discontinued should an episode of uterine bleeding occur before the treatment regime has been terminated and is resumed in similar fashion following the bleeding episode. Usually two series of this type of therapy are administered, though the endometrial response as determined by biopsy governs the indications, i. e., all therapy is discontinued if a progestational response (indicative of complete endometrical salvage) is obtained and the endometrium sampled at the onset of the next episode of bleeding to determine the spontaneous abilities of the ovario-endometrial system. If indicated by the persistence of estrogenic endometria, additional therapy of the following order is given: Estradiol benzoate in doses of 0.3 mg. (2,000 R.U.) and 5 mg. of progesterone (the progesterone component may be unnecessary) are administered simultaneously every other day in the last half of the cycle starting on the fourteenth day and continuing for ten days, therapy being discontinued if bleeding occurs. Several series of low dosage sterol therapy of this fashion are administered until a progestational response of the endometrium is secured.

In instances wherein continued estrogenic responses are noted by repeated consecutive endometrial biopsies, pituitary deficiency may be suspected. This is treated by a system of cyclic one-two gonadotropic therapy which may be described briefly: Equine gonadotropin (the precautions concerning allergic responses to equine gonadotropic therapy and clinical observations to be made periodically have been delineated) in daily doses of 400 to 800 I.U. is administered intramuscularly for ten days, therapy beginning at the cessation of an episode of bleeding. Immediately thereafter, chorionic gonadotropin† in daily doses of 500 to 1,000 I.U. is administered for ten more days, therapy being discontinued if an episode of bleeding occurs.

At the onset of bleeding, the endometrium is sampled by biopsy to determine the responsiveness to therapy. If a progestational endometrium is obtained, normal ovarian response is indicated. If the ovaries are receptive, the first series of therapy usually induces a progestational response. Therapy is discontinued for the following month to permit the ovaries to demonstrate their spontaneous recovery, and the endometrium is sampled by biopsy again at the onset of the next episode of bleeding. A positive response permits the assumption that complete ovarian salvage has resulted.

In those instances wherein positive responses are obtained to cyclic one-two gonadotropic therapy but not on discontinuation of therapy, the ovarian sterility is treated actively as described above and efforts are instituted to secure a pregnancy. Due to intercurrent ovarian failure, such pregnancies are apt to abort; hence, active substitutional therapy with estrogens and progesterone is initiated as soon as the pregnancy is diagnosed and continued throughout its course.

If patients do not respond favorably to two series of cyclic one-two gonadotropic therapy, it may be assumed that no pituitary deficiency that may account for the ovarian failure exists.

It is apparent that therapeutic testing in the manner described above permits the differential diagnosis of ovarian failure due to intrinsic ovarian inadequacy, endometriopathic factors and pituitary deficiency. Favorable responsiveness to cyclic estrogen-progesterone therapy indicates the existence of endometrial inadequacy, whereas positive responses induced by cyclic one-two gonadotropic therapy direct attention to pituitary deficiency as the cause of the ovarian failure. No response to either form of therapy indicates intrinsic ovarian failure.

Ovarian failure of the climacteric results from intrinsic senility of the ovary; no pituitary deficiency exists. Inasmuch as the ovaries are intrinsically refractive, no recovery of the ovarian sterility can be anticipated. The therapeutic regime for the climacteric should be designed to permit symptomatic clinical transition and readjustment throughout this period with no expectations of adequate therapy of the ovarian failure *per se*. In that connection, intensive estrogenic therapy is not needed by the ma-

*Available commercial preparations of progesterone include: proluton (Schering), progestin (Lilly) and lutocylin (Ciba).

†Available commercial preparations of chorionic gonadotropin include APL (Ayerst, McKenna & Harrison), antuitrin-S (Parke-Davis & Co.) and follutein (Squibb).

jority of women; indeed, prolonged employment of estrogens may produce dire complications, as marked psychiatric disturbances, uterine hemorrhage, dermatitis and generalized edema. More rational therapeutic measures include modification of the tempo of living, sedation and the reassurance permitted by a thorough medical and gynecologic investigation. Small doses of oral estrogens employed for a short time may supplement the therapeutic regime with beneficial results without altering the sexual regression or the endocrine readjustments characteristic of this period.

One dictum relative to ovarian failure is pertinent: Every instance of genital hemorrhage (intermenstrual spotting, menorrhagia, metrorrhagia) of a woman of climacteric age should be investigated by diagnostic curettage for the presence of possible malignancy before endocrine therapy is considered.

SUMMARY

(1) Rational therapy of ovarian failure is determined by the diagnosis of the degree and nature of the ovarian failure and the segregation of the etiologic factors contributing to the failure.

(2) The symptomatology and the criteria for the diagnosis of diverse grades of ovarian failure have been discussed.

(3) Various causes of ovarian failure have been classified and the mechanism of their impairment of ovarian function has been discussed.

(4) The ultimate aim of the therapy of ovarian failure is the initiation or restoration of fertile cycles, i. e., circumvention of existing sterility.

(5) The cause of the ovarian failure conditions the prognosis relative to physiologic salvage and defines the therapeutic approach.

(6) The limitations and the procedures of various therapeutic measures available at present for the treatment of ovarian failure have been considered.

(7) Diagnostic exploration with testing of ovarian responsiveness to gonadotropic therapy or endometrial responsiveness to cyclic estrogen-progesterone therapy permits differentiation of ovarian failure ascribable to intrinsic refractivity of the ovaries and conditions the therapy. The procedures and the interpretation of these therapeutic tests have been presented.

(8) Critically selected therapeutic measures as determined by the diagnosis of the exciting causes of ovarian failure are capable of restoring normal physiologic ovarian responses in many women with ovarian failure.

THE ASSAY OF URINARY GONADOTROPIN IN CASES OF TESTICULAR TUMOR.*

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It is now generally accepted that the assay of urinary gonadotropin plays an important part in the diagnosis and treatment of certain testicular tumors. However, apparently it is still impossible to state which of the malignant types of testicular tumors produce this hormone. This is further complicated by the fact that various pathologists use different types of classification. Consequently, for the purpose of urinary assay, one may cut the Gordian knot by means of a physiologic classification, i.e., there are two types of malignant tumor of the testes: those which produce gonadotropin and those which do not. For purposes of diagnosis, therefore, a positive test for this hormone denotes the presence of a malignant growth; a negative test means nothing. For that reason, I consider it highly advisable to routinely determine the hormone content of a twenty-four hour specimen of urine in a case of suspected malignancy, *before* operation or irradiation. If this is not done, we will not know whether this was a hormone producing tumor or not. Consequently, if later the presence of metastases is suspected, several tests may have to be made before we can conclude either that no metastases have occurred, or that—should they become clinically apparent—it must be a non-hormone producing growth.

Other writers have probably stressed sufficiently the fact that the rabbit ovulation test should not be

*Delivered before the American Association for the Study of Neoplastic Diseases, Washington, D. C., September 6, 1940.

used in this condition, because the hormone concentration is often too weak to produce positive results. In one patient, rabbit tests on first morning specimens of urine were occasionally positive but often negative.[1] It is necessary, therefore, to use a quantitative test, employing rats or mice.

Before passing on to the technic of this test, I wish briefly to review some facts concerning this hormone, *gonadotropin*, which is now the official term for what was formerly called prolan. Moreover, instead of speaking of *prolan A and B*, we now use the terms *Follicle Stimulating Factor and Luteinizing Factor*. The gonadotropic hormone may consist of varying mixtures of these two factors, or of either one alone.

Gonadotropin is formed by two types of tissue: the anterior pituitary (when it is called *pituitary gonadotropin*), and by chorionic and related tissues (*chorionic gonadotropin*).

We find gonadotropin in the urine in various conditions. It is of *pituitary* origin (1) in castrated males and females, whether by surgical or natural means (menopause), and (2) for a few days about the mid-point between menses, when it is thought to denote ovulation.

It is of *chorionic* origin in (1) females with pregnancy, hydatidiform mole, and chorionic epithelioma, and (2) in males with certain types of malignant testicular tumors, especially those containing chorionic tissue. However, some investigators believe that certain types of tumors, as seminomas, do not themselves produce this hormone, but rather cause the excretion of pituitary gonadotropin, perhaps merely by destroying testicular tissue and producing a hemicastrate.

It is easy to understand why a castrated male or female should excrete pituitary gonadotropin in the urine, for, because of the absence of the inhibiting androgenic or estrogenic hormones, the anterior pituitary becomes over-active. Administration of a sex hormone will promptly diminish or prevent this excretion. However, usually a hemi-castrated male also secretes small amounts of this hormone—why, it is impossible to explain. Occasionally, perhaps, we may suspect that previous irradiation may have damaged the remaining testis. Ordinarily this cannot be the case. We can only presume that the remaining testis is unable to hypertrophy sufficiently to completely replace the lost tissue. Whether this is also true of a female, I do not know.

Now I wish to review the general technic of this test as used both as an aid to the clinical diagnosis of a malignant hormone-producing tumor, and to detect early metastases following treatment.

In my opinion, an entire twenty-four hour specimen of urine should be obtained. This enables one to report the number of rodent units per twenty-four hours, as well as the number per liter. In this way, marked variations in hormone concentration due to varying intake of fluid may be avoided. Since this urine is to be concentrated in any case, there is no need to use the first morning specimen of urine as with the rabbit ovulation test for pregnancy.

The hormone should be concentrated before injection. Some investigators use instead the unconcentrated first morning specimen of urine but—due to the limited amount of urine which can be injected—there will need to be at least 100 rat units per liter to produce a positive test. Since some tumors may produce less than this amount, especially in early metastases, I believe it advisable to test for lower concentrations even though this greatly increases the labor required.

The alcoholic concentration method has proven simple and satisfactory. One of its chief objections —the production of a toxic concentrate due to precipitated K salts[2]—can be obviated by a three to five hour dialysis through cellophane tubing. However, when concentrating the urine only twenty times, and injecting only twice a day, it is rare that a rat dies. The exact technic of concentration is similar to that of Frank,[3] 600 cc. of urine being used, and brought to the correct pH with universal indicator paper. The dry precipitate is taken up in 30 cc. of H_2O—a concentration of twenty times. Immature female rats are far preferable to mice for this particular technic, due to their larger size, since the ovaries and uterus are weighed, and a vaginal smear is made. It is of definite advantage to have one's own colony, since one may be sure that the rats are of the same age (twenty-one days), and of the same size.

The method of Heller[4] in giving nine injections over a period of five days probably intensifies the effect of a given amount of hormone, and, likewise, it is definitely less toxic.[5, 6] Therefore, I consider this method preferable to the common technic of three daily doses for two days.

Finally, one must choose an end point for this test. With the usual methods employed, one must merely estimate it, either from the gross appearance of the

enlarged ovaries and uterus, or by histologic examination of the ovaries, the latter requiring extra labor. I prefer to allow a balance to do the estimating for me, and consequently weigh the ovaries and empty uterus. If gonadotropin is present, it increases the ovarian weight, and, due to the consequent secretion of estrogen, the uterine weight also increases tremendously. Therefore, a definite increase of ovarian and especially of uterine weights denotes the presence of this hormone, without the necessity of estimating an end point, and one can readily determine by comparison of a series of tests on a patient, whether the hormone is increasing or decreasing in amount.

However, it is of some advantage to be able to report the number of rat units (R. U.) per liter and per twenty-four hours to the clinician. For this purpose, the postive vaginal smear is an excellent end point to denote one rat unit. The smear should consist of cornified non-nucleated cells, entirely without leucocytes or mucus. The least amount of urine producing this effect is considered to contain one rat unit of gonadotropin.

It is true that if the gonadotropic hormone produced contains varying quantities of the luteinizing factor, the ovarian and uterine weights may not be quantitatively affected, but in the same patient, this should not affect a conclusion as to whether the hormone concentration is increasing or decreasing.

Since it is claimed that certain types of tumors may produce more luteinizing factor than others,[7] it may be of some future advantage to record the presence of corpora hemorrhagica and lutea.

When running the first pre-operative test on a patient with suspected malignant tumor, I believe it advisable to test for the hormone over a fairly wide range of concentrations. Consequently, the following series of injections are made, using six rats:

FIRST TEST

	A CONCENTRATE (20 TIMES)			B UNCONCENTRATED URINE		
	Rat 1	Rat 2	Rat 3	Rat 4	Rat 5	Rat 6
cc./inj.	1.0	0.5	0.1	1.0	0.5	0.1
Total amount in 9 injections	9.0	4.5	0.9	9.0	4.5	0.9
Equiv. amount fresh urine (cc.)	180.0	90.0	18.0	--	--	--
No. R.U./lt.	5.5	11.	55.	111.	555.	1111.

Thus the urine is tested for concentrations varying between 5.5 R.U./lt. and 1111 R.U./lt. Should the hormone titer be above this highest figure, this fact will usually be of more interest than of clinical value, since there is then no doubt of a hormone producing tumor being present.

Should the patient's hormone excretion fall between 5.5 and 55 R.U./lt., indicating a tumor of poor hormone producing properties, or of small size, then the second test, usually following operation or irradiation, may be aimed at that particular concentration in smaller graduated doses, to determine more accurately the exact amount present, as indicated below.

SECOND TEST

	CONCENTRATE (20 TIMES)					UNCONC. URINE
	Rat 1	Rat 2	Rat 3	Rat 4	Rat 5	Rat 6
cc./inj.	1.0	0.75	0.5	0.25	0.1	1.0
Total amount in 9 inj.	9.0	6.75	4.5	2.25	0.9	9.0
Equiv. amount fresh urine	180.0	135.0	90.0	45.0	18.0	--
No. R.U./lt.	5.5	7.	11.	22.	55.	111.

Below is tabulated the typical results of a test, in the form as reported to the clinician. This was a patient who had been hemi-castrated many years previously.

	CONCENTRATE (20 TIMES)			URINE		
Total dose	9 cc.	4.5 cc.	0.9 cc.	9 cc.	4.5 cc.	0.9 cc.
Wt. in mg.						
—ovaries	40	34	18	15	16	13
—uterus	106	70	30	19	25	23
Vagina	open	open	open	closed	closed	closed
Vag. smear	+	+	±	0	0	0
Corp. hem. or lut.	0	0	0	0	0	0

24 hour specimen = 1,760 cc.

The first positive vaginal smear appeared with a total of 4.5 cc. of concentrate, equivalent to 90 cc. urine, = 11 R.U./lt. This amount is quite compatible with the fact that the patient is a hemi-castrate. The advantage of using this number of graduated doses is that we are able to rule out any abnormal reaction of one rat, and to minimize the importance of one dying.

If what I have said has given you the impression that this is a complicated test requiring the services of an expert, then my poor presentation is to blame, for once a technician has run this test, she has no difficulty with it thereafter.

SUMMARY

Brief mention is made of those conditions in which urinary gonadotropin is found. Some recommenda-

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tions are made concerning the technic of assaying this hormone in cases of testicular hormone-producing tumors.

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IGNORANCE AND MEDICINE.*

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This might seem no time, at the beginning of what appears to us the world's greatest social and military revolution, to recite the follies of medicine. Medicine's mistakes are the mistakes of mankind. Because certain men have turned their ambitions to the relief of suffering and the prolongation of life does not necessarily inflict on them the responsibilities for all the obverse activities of man and his natural enemies—chiefly himself and his fellows. A physician is by choice of profession an observer, a dispassionate witness who should seek and humbly profess to seek a remedy for what he finds awry. There is no accurate philosophic conscience that makes him responsible for developments over which he has had no control. It is not his error that man is an inadvertent survivor of his own mistakes or that "he is an animal that likes to take physick".[1] What we have to say pertains not so much to the medical profession as to medicine as a general humanitarian attitude towards the ills of mankind.

Inscribed over a gateway[2] familiar to many of you are the lines:

> Through wisdom is an house builded; and by understanding is it established: and by knowledge shall the chambers be filled with all precious and pleasant riches.[3]

This proverbial metaphor does more than attest the majesty of Reason or to suggest industry to seekers after higher learning. It teaches us that to define Wisdom is not a simple undertaking. The philosophical anatomy of Ignorance is no less elaborate.

Ignorance is commonly understood to mean lack of general or particular knowledge. Furthermore, in a profession, it may denote a lack of information that by ordinary standards ought to have been acquired. Here the term ignorance takes on the unpleasant sense of a sin of omission, almost an allegation of negligence. Yet this is not the worst. For ignorance can be and usually is extended to a sin of commission—false knowledge or pedantry. It is therefore not so much a lack of knowledge[4] as "knowing so many things that ain't so". There are, in effect, two things, to know and to believe one knows; to know is science; to believe one knows is ignorance.[5]

It has been said that "the basis of medicine is the instinct of preservation". Preservation relies on the maternal instinct, the acquisition of food and shelter, hygiene, and sympathetic social behavior. The survival of every species of plant and animal has depended upon an instinctive knowledge that is essentially scientific in that it has adjusted the individual to his peculiar environment. From heliotropism in plants to the choice of diet practiced by protozoa the law seldom varies. Man is the only survivor who has just discovered his vitamins. He is the only animal who has developed so complex a social system that his diseases have been preserved and multiplied. It would seem that many of his instinctive biologic adjustments have been neglected or forgotten. The causes of this situation no doubt lie in his preoccupation with thought. It has been suggested that Reason was the apple that threw him out of the Garden of Eden. Without it, man might still be a happy ape, "chattering in a paradise of bananas".[6] With it he still chatters on in a purgatory of ignorance:

> Place on this isthmus of a middle state,
> A being darkly wise and rudely great:
> With too much knowledge for the sceptic's side,
> With too much weakness for the stoic's pride,
> He hangs between; in doubt to act, or rest;
> In doubt to deem himself a god, or beast;
> In doubt his mind or body to prefer;
> Born but to die, and reasoning but to err[7].

*From the Walter Reed Lectures: the Section on the History of Medicine of the Richmond Academy of Medicine, February 11, 1941.

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A more recent philosopher sums up man's disposition as follows: "Though he is the one creature who can significantly alter himself in his environment to suit his private tastes, he is the only one who is obviously maladjusted with himself and his environment. He is the one creature who might possibly obtain the necessities of life without robbing and killing his fellows, yet he is the most selfishly acquisitive and the most ruthlessly murderous of all. He is the one creature who is able to know much about himself and the world, and the only one who is habitually deluded. He is the one creature who can laugh, and the only one who is persistently unhappy. He is the one creature who can dodge many cruel and dangerous exactions of Nature, only to run foul of more cruel and dangerous devices of his own manufacture."[6]

Man is an ignorant animal. He is in a way the most ignorant animal of all; first, because he is capable of knowing so many things that he does not know, and, again, because he has developed extraordinarily this ability to know things that are not so, or at least unproven. It is not characteristic of man that he can put two and two together, but he does it so easily that the expression has become an idiom. What is not idiomatic is the humble truth that when he does put two and two together he gets three or five or some other number, as often as he gets four. He may be only faintly aware of it but he usually gets what he wants to get, or rather believes what he wants to believe. He does this because he is conditioned to wishful thinking. Like Pavlov's conditioned dogs, when the gods or the devil or Fate throw up an unwished number he keeps right on calling it four just the same—or he gets hysteria.

Man, and perhaps some higher animals, acquire a certain amount of conscious knowledge by this old quasi-rational method of trial and error. It is a tedious way and often a treacherous one, for Nature and her passionate creatures change the rules without notice. Nevertheless it is the only method which most animals have and the only method that man has been willing to trust. He sometimes knows that it is a deductive experimental approach that makes no allowances for changes in the conditions of the experiment. At the moment of decision it seems the most urgent and practicable solution. It is not a simple coincidence that it is also the laziest.

The internal bodily functions of animals and most of their outward behavior can be explained on the basis of habit—a phenomenon of inherited and acquired responses. Habit formation is an instinctive reaction to internal and external environment[8]. For various reasons it may or may not involve consciousness. Nevertheless, it is accomplished through memory and therefore represents a form of learning or knowledge. Memory has been shown to be a function of all living cells and to be the principle upon which biologic adaption and organic evolution depend[9]. There is thus a "wisdom" of the body that is unconscious but none the less wise and necessary to life. Since we do not have to work hard to get it, we are apt to take it for granted, which is perhaps just as well. There are troubles enough in our conscious mind to keep us busy.

In studying the psychology of early man, we fortunately have a research laboratory on all sides. We have only to walk and talk among our contemporary neighbors to find examples of thinking as primitive as ever. We find that our sum-total of information has increased tediously but enormously, although our individual method of acquiring it and our capacity for thinking about it remain essentially unchanged. There is one honest disciple[10] of Plato who thinks we are possibly "slipping". In spite of the discovery of abstract thought, a wonderful new tool for the acquisition of knowledge, our efforts to put it to practical use have been restricted and confusing. Abstract thought is apparently peculiar to man. Its method of producing knowledge is through speculation by means of mathematical logic. It produces ignorance equally well through speculation by means of fallacious logic. It has been to man's everlasting error and disgrace that he has combined past experience, present experiment, and abstract thought so obtusely as to produce ignorance more often than knowledge. Nowhere has the error been more costly than in medicine. Its history is a long story of superstition and bigotry.

II

One long panoramic glance at the tenuous history of the development of medical knowledge is enough to convince us that it is here that mankind's greatest intellectual frustration has existed. Nowhere has knowledge been so essential to his immediate and ultimate survival; to the ideal of total happiness. Nowhere has knowledge been so painstakingly gained and miscarried, false knowledge so tragically mis-

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applied. It would seem that we have put off the study of ourselves until the last. In acquiring food, in building shelter, and in amusing ourselves with various devices—even in war—our mistakes have been the simple predictable errors of inexperience, progressively corrected according to practical notions of trial and error. Except as a conventional adjunct, man has never seriously relied on magic to kill a buffalo, build a bridge or a barn, or to defend himself against a mortal enemy. On the other hand, in the treatment of his mortal ills, he has strangely depended upon every conceivable kind of witchcraft. The least of these sorceries has not been his power of speech. It has allowed him the tragic amusement of thinking less about things themselves, than what others have said about them. The Tower of Babel was no idle expedient.

Man has by himself been unable to admit simple ignorance. His concerted efforts to cure himself have been marked by an awkwardness of approach that seems on short study to be amazing. It is not amazing when we analyze the historical conditions. Only in very recent times have the real means of acquiring medical knowledge been available. Accurate knowledge of medicine has been learned the hard way, the way of blind experience. Man's great faculty of reason, instead of being a help, has been more of a hindrance. This situation is due to the fact that abstract logic, so effective alone in mathematics, is useless in medicine. Medical science, unless controlled by biologic experiment is not mathematically quantitative and exact. The method of trial and error has to be added to logic, and *vice versa*, to produce reliable information about biologic phenomena. For a very definite reason this experimental method, so necessary and favorable to other arts and sciences, was denied to medicine. That reason had its origin in man's personal vanity. In the famous Greek allegory, Narcissus mirrors our race. "Self-love, the spring of motion, acts the soul."[7]

We do not know at just what period in man's history he fell in love with himself, but it was long ages ago. Perhaps the relative power and success of his primitive reason convinced him that he was some sort of a god. Perhaps he was. Indeed, his ability to use tools and weapons made him free and somewhat apart from other mortal creatures. At any event, the earliest graveyards contained implements which were hopefully supposed to serve him in another world. Ever since, he has considered the earth only as his temporary habitation; he can go away but he can not really die. Death has been thought of as beyond and above Nature. Long ago its industrious apprentice, disease, became a supernatural and alien affliction. It became an evil visitation, independent of the body and affecting its function without affecting its real structure. The body remained pure and pious, unaffected by morbific sin. In such a concept, the study of anatomy, pathology, and physiology is more than unnecessary; it is blasphemous — the inquiry and the remedy should very properly be directed towards the outside disease and not towards the patient. Until the seat of disease was admitted to be the body, no intelligent effort could be made to study its nature. Only in their search for the whereabouts of the soul have men been so contentious and confused.

The association of medicine and religion is inevitable. To minds that can not or will not conceive of disease as a biologic necessity it is an easy step, almost a necessary step, to ascribe it to a god. To primitive man disease was an evil inflicted by angry spirits of the dead. It stalked him like a fateful shadow, to be run from, cajoled, prayed to, and finally denied. In the earliest civilizations separate deities such as Imhotep, the God of Abraham, and Aesculapius, presided over illness and conferred health or disease as a simple fiat or through the elaborate magic of their disciples, the priest physicians. Symbolic deities, such as the stars, sacred animals, and shrines, were developed in the ancient and modern practices of astrology, divination, sacrifice, and expiative pilgrimages. The recent medieval crusades offer an interesting study in guilt reactions. There is often but a slight difference between intellectual catharsis and legerdemain.

Civilization is justly proud of its ancient, as well as its modern Greeks. Although they did not originate the science of abstract logic they were the first to perceive that its principles were applicable to the sociologic needs of mankind. In what Shakespeare would have called a great "throwing about of brains" we are proud and in fact samewhat astonished that medicine was not left out. It was not entirely the fault of Hippocrates and the Coan school that their scientific attitude failed to receive the necessary confirmation of practical experiment. Greek pantheology had become a relatively tolerant system in

that disease was permitted to inhabit the human body and materially affect it. The body had become recognized as such a battleground of contending humors that it often succumbed mortally. Nevertheless, as long as life persisted the body was the dwelling place of the soul, and philosophers could not at first or at last agree in what organ it resided. Whatever the location, the soul (and its seat) could not be diseased, for the soul was and still is, by definition,[4] perfect and immortal within or without the body. Until the point was settled the whole body was inviolable from an experimental standpoint.

Hippocrates placed the soul in the liver. Plato, the idealist, on grounds so absurd that we must accuse him of facetiousness, placed it in the head (as being closest to Heaven). His humor was either discredited or ignored by Aristotle, who decided, on seemingly good experimental evidence, that the habitat of the soul was in the heart and that all intellect came under its hegemony. The next great realist in medicine, Galen, accorded with the combined experimental and religious philosophy of Aristotle. Their unquestioned dogmas fused and governed philosophic, religious, and medical doctrine for 1,500 years. From a philosophical standpoint, it was not until the "synthesis" of Saint Thomas Aquinas, in the thirteenth century, that human biology became theoretically separated from religion. The separation is still largely theoretical.

III

Although he might be the last to admit it now, man as an animal species is partly totalitarian. In this sense, his closest associates in the animal world are the insects. They achieve practical totalitarianism by two methods: the practice of preserving only the strong (and dumb), and an equally efficient device of producing so many individuals that the natural mortality is inconsequential. Man's totalitarianism is theoretical and religious in that the strong are preserved—but in another world. His chief concern for his brother is for the future of his brother's soul. Although he loves to believe otherwise, the altruism of his tribal and civilized life has been based on greed or self-preservation, in reality individualistic. If his concern had ever been the earthly destiny of the race, he would have paid more attention to genetics, to the survival of the fit, and to the problems of medicine. It has been said that, "By a strange combination of generosity and greed he protects the weak in asylums and kills the strong in futile wars. . . . By a strange combination of ingenuity and impotence he multiplies the basic necessities of life far beyond any possible need, only to let millions go hungry and unclothed for lack of efficient distribution."[6]

To an outsider it would look as if we have been convinced of the futility of our own world. Perhaps our hypothetical defeat has been that we can envision another. At any rate our racial destiny has ever been in a Heaven,—some happy hunting ground. The pages of history are crowded with the activities of religious reformers, purveyors of a happy totalitarian life to come. The principle of life-after-death was discovered by precocious theologians ages before the dawn of history. The discovery of oxygen, the principle of life-on-earth, was made less than two centuries ago.[11] Its real importance has even been denied or ignored by the faithful as introducing a dubious or rival system of teleology.

This form of analysis seems severe, but it is the only reasoning that will explain man's obstinate denial of disease, his refusal to study it at its source. Civilization flourished for thousands of years before he would consider the problem. The Greek candle had no sooner been lit than he blew it out. Two thousand years later his reconsideration of the real nature of disease can be attributed to little more than fatigue, to the utter boredom of his reverberated dialectics—or to the natural curiosity of his simian inheritance.

If the incentive for the awakening in medical knowledge is still obscure, the history of its drama is not. The actors were strangely enough not practitioners of the Art. Leonardo, Palissy, Bacon, Descartes, and many others played primary rôles. The practical science of Newton, Gilbert, Kepler, and Galileo was supplemented by the satirical and provocative writings of Rabelais, Molière, Stern, Swift, Cervantes, and Voltaire. These and other intellectual leaders gradually forced a renaissance in medical thought. In this history we may read a lesson for today. *Verbum satis sapienti.*

The inertia of active ignorance is difficult to overcome, but common logic seems always ultimately superior to dogma. It is a law of physics, that for every action there is an equal and opposite reaction. So in medicine, for every magic there seems to be an equal and opposite counter-magic. Strangely enough, man's protective devices seem always to frustrate his

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destructive impulses. For every widespread development of a gunpowder there has always been a Pasteur. For every man killed in war, another has been saved from disease. Unfortunately, from a phylogenetic standpoint, this principle is again the destruction of the strong and the preservation of the weak.

The heretical notions of Paracelsus and Vesalius, the popularization of human dissection in the Italian Universities, and Harvey's fundamental analysis of the experimental method had practically no effect on the general medical knowledge or the current medical practice of the renaissance period. Harvey himself continued to believe that the heart was the source of the body's innate heat and sense and that its action was cooled by the "bellows" of respiration. In his famous work, De Motu Cordis, he states thus: "There must needs be a place and beginning of heat by which the nursery of Nature, in the first beginnings of inbred fire may be contain'd and preserv'd; from whence heat and life may flow, as from their beginnings, into all parts; whither the aliment of it should come, and on which all nutrition and vegetation should depend. And that this place is the heart from whence is the beginning of life, I would have nobody to doubt."[12] For several centuries practicing physicians paid no real attention to his discovery that the blood circulates and knew nothing of the pertinent implications of his experimental method. Thomas Sydenham, the great Hippocratic physician of the seventeenth century had never heard of Harvey. Like his literary contemporary, John Donne, he was forgotten.

Seventeenth, eighteenth, and nineteenth century practitioners of medicine concerned themselves with the popular metaphysical doctrines of the day. In 1807, Thomas Jefferson, one of the greatest medical philosophers of all times, wrote these words: "I have lived myself to see the disciples of Hoffman, Boerhaave, Stahl, Cullen, Brown, succeed one another like the shifting figures of a magic lantern, & their fancies, like the dresses of the annual doll babies from Paris, becoming, for their novelty, the vogue of the day, and yielding to the next novelty their ephemeral favor. The patient treated on the fashionable theory sometimes gets well in spite of the medicine."[13] Thus modern scientific medicine, as in the case of that Greek art which is still modern, had its foundations laid by scientists whose perspective was not circumscribed by too intimate a knowledge or ignorance of the art of medicine. The eminent physicists, biologists, chemists, physiologists, and philosophers of the last three centuries developed the principles upon which our twentieth century science has been built. It was not until this century that the theory of medical practice became separated from Galenic empiricism and the misinterpretations of Aristotelian metaphysics.

IV

The dispassionate study of history ought to be a useful pursuit. It ought to satisfy our curiosity, sharpen our wits, and gain us a perspective for the interpretation of the present; perhaps even for a glimpse of the future. As Patrick Henry once said, in this City by the Falls of the James: "I have but one lamp by which my feet are guided, and that is the lamp of experience. I know of no way of judging the future but by the past."[14] The lamps of medical experience have burned dimly in the past, but they burned a long time. We ought to avail ourselves of the knowledge of our past mistakes and there are enough of them in medical history to give us pause about any new thing. The newest thing we have in medicine is our ultra-scientific, possibily ultra-mechanistic attitude.

There is no real distinction between art and science. They are concepts that represent different phases of development in a subject, but not different subjects.[15] It is art to do, science to understand. Medicine developed primarily as an art, through the dogmatic necessity of ignorance. It has continued on to become a science through the empiric necessity of knowledge in biology, chemistry, and physics. It has never served the people properly in either single capacity. Reality, so necessary to science, is apparently not applicable to the lives of many people. The way by which reality is softened to meet the capacity of individuals is in medicine called art. In the past, the art of medicine was partly vitiated by metaphysical attempts to help the body; attempts that were unsuccessful because they were based on no real knowledge of the subject. Now that science has shown us so much about ourselves, we seem to have reversed the process and become so pre-occupied with our physical structure, in disease and health, that we have neglected the art of administering to our person. The words of Plato still apply to us: "It is the great error of our day in the treatment of the human body, that physicians separate the soul from the body."[16]

Medicine has never seemed quite able to comprehend the whole individual. In primitive and historic medicine knowledge of the whole was so scanty that attention was centered on the spirit, particularly its future habitation, while the patient was amused and distracted, often to death, by various magical remedies purporting to allay supposed foreign humors in the body. At the present time knowledge of the physical body has become really so extensive and concise that we can give all of our time to it and never finish. Man can be measured and weighed, his cavities photographed and explored, his organs tested in every sort of way, even to the molecular oxygen that he burns. His juices can be stimulated, suppressed, and analyzed to the millionth part of a gram. There are machines which test the rhythmic emanations from his brain; which can measure the heat that is produced in his stomach by a disturbing thought. The three or four hundredths of a second's difference that indicate impediment to the timing of his heart can be registered graphically and proven in its subsequent disease. Yet we have little or nothing to tell us what man is thinking or how he will behave from minute to minute or from day to day. We can describe his behavior, but we have only rudimentary notions of the motives behind it or their general remedy. Although man's mental problems account for much of his illness and disability, our knowledge of them is so limited that we have generally neglected the subject. It is easier for us to apply our thoughts and our hands and our machines to tangible diseases that we know more about. In this we are following an ancient and ignorant prejudice.

Dr. E. A. Hooton has said recently: "Medical Science is primarily occupied with uncovering the needless actual biological sins man has committed against his organism by developing an artificial civilization."[17] This statement is true, but obviously cannot be remedied as long as we go on making that civilization more and more artificial, our biologic sins more and more numerous. Recent years have perhaps shown some improvement in our general attitude and in our attempts to further the study of mental hygiene and abnormal behavior,[18] but in the individual practice of medicine there seems hardly any time for the consideration of the mental problems that confront an individual and often make him sick. Like the physician to Lady Macbeth, when asked the question, "Canst thou not minister to a mind diseased?"—we are still accustomed to reply, "Therein the patient must minister unto himself." It would seem that man's mental conflicts have had to develop physical reactions in the form of sublimations in order to gain attention. For an animal that has the gift of speech this is downright amazing. Can it be explained by our natural tendency to avoid and neglect what is difficult and therefore unpleasant? Is it possible that among so much science we may be about to lose art—to gain the whole material world and lose our appreciation of it? One expects that the answer is not so simple, but that it can be read from the pages of medical history. There is hardly any doubt that we are dealing with the same old problem of the soul. We no longer believe that it is located in the liver or the heart, or even in the brain. But the people generally believe that the soul has a habitation somewhere, possibly in the mind, and the functions of the mind are consequently linked with a supposed destiny of the spirit.

Difficulties that have attended the practice of psychoanalysis should be enough to teach us that the mechanisms of human behavior are fundamentally allied to religion. The consideration of this dichotomy of mind and spirit, of philosophy and religion occupied and directed medical thought for thousands of years. It would be a cause for alarm if we should find that man had suddenly thrown religion or formal philosophy out of the medical window. We should suspect him of so radical a flight into reality that his previous flights from reality would appear quite insignificant. The history of medicine teaches us that until some more practical combination of religion, medicine and philosophy is evolved abnormal thought and behavior will continue to be a major problem of man. This is a problem that has to do with the apathy of many individuals in response to their illnesses; with the widespread indifference to preventive medicine. It is a problem that has to do with the inevitable socialization of allopathic medicine, with eugenics and perhaps euthanasia. It has to do with the success of the medical cults that flourish like weeds both within and without our own professional garden. It is a problem in general public education, which we know is largely necessary to special professional education in medicine or in any vocation. The general practice of medicine still reflects and will continue to reflect the current knowledge of the people as a

whole rather than the advanced medical insight of a handful of scientific leaders.

Modern medicine is widely acclaimed, and justly so, for its advancement of special knowledge. However, to my mind, its most distinctive accomplishments have been made against ignorance, against the false knowledge that has permeated lay and medical thought for so many dark and damp ages. It is not what we have just learned to do so much as what we have just learned not to do. For the second time in history we have had the courage to say what we do and what we do not know; to admit with Hippocrates the value of natural forces in health and in disease. We have developed scientific techniques that are miraculous adjuncts in the detection and treatment of illness. Yet all these things will avail us little as individuals, or as a race, if we neglect our major problem. That problem is the general ignorance of man.

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HEMORRHAGE IN LABOR.*

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Hemorrhage, as a complication to labor, continues to be one of the major gateways to maternal death.

The Maternal Health Committee of the Medical Society of Virginia, working with the State Health Department, has undertaken to study the records of all maternal deaths occurring in the State of Virginia. This work was started December 1, 1939. There are 200 fatalities occurring in approximately 50,000 births, or about one death to 250 labors. Forty-nine thousand seven hundred and fifty did not die. This may explain to some extent the unwarranted confidence and complacency which has often characterized our approach to the treatment of an obstetric case. The 200 deaths so far studied show thirty-four due to hemorrhage. The whole committee has not yet jointly considered these and some may be finally attributed to other causes but the fact remains that in thirty-four cases uncontrolled hemorrhage was an outstanding factor.

It is my purpose here to present certain facts and occurrences which, if duly considered, might cause any one who undertakes the care of an obstetric case to give respectful consideration to the dangers which may at any time beset him and his patient.

Probably in six of these thirty-four cases, death was unavoidable, but in sixteen cases the deaths could be attributed to errors with reasonable accuracy. Most had the disadvantage of no prenatal care and environment of the poorest kind. Often there was no planned labor. The public or its government must offer help to this class, both educational and material. This is being done in a large degree through the prenatal clinics, of which there are ninety-three in Virginia, under the supervision of the State Department of Health. Probably much

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more help will be required than it is possible for any clinic to provide. Fortunately, however, steady improvement has been shown to follow efforts already made, but we cannot escape our obligations by pointing to other deficiencies.

The deaths from hemorrhage were distributed among the several types: post-partum, placenta previa, ablatio placenta, and hemorrhage following abortion, in the order mentioned,—the greatest number being due to post-partum hemorrhage. On the whole, the picture is so confused by the ignorance, poverty and lack of cooperation on the part of the victims and their families that evaluation of any one factor seems often very difficult. So far as the medical care is concerned, the failures are apparently due to errors which most of those who give any thought to this subject would agree upon. Pituitrin is still being used in the second stage of labor and has at least been a prominent factor in one or more of these deaths. The story in this case is that when apparently labor was progressing satisfactorily and the patient was believed to be near the end of the second stage, ½ cc. pituitrin was given. A large baby was delivered almost immediately. Hemorrhage, shock and death followed in quick succession.

In one case, the doctor was called on account of slight vaginal bleeding which had stopped when he arrived. He was called later and found more hemorrhage. The vagina was packed with pledgets of unsterile cotton. She was then sent to a hospital where she was found to have a central placenta previa. On account of fear of infection from the packing, a section was not done but version and extraction was followed quickly by death. No preparation for blood transfusion had been made. The hospital treatment was, of course, debatable, but all will agree that if the doctor had sent the patient to the hospital without examination when first seen, her chances of recovery would have been much better. One patient, seven and a half months pregnant, presented evidence of ablatio placenta. I know that there is much difference of opinion among learned and skilful doctors on this subject. This doctor did what many others advise, ruptured the membranes. Labor did not start and after four days, the patient died undelivered from toxemia, hemorrhage and anuria. Three of the post-partum hemorrhage cases died with the placenta undelivered. One lived long enough to develop sepsis before death and at autopsy portions of the placenta were found in the uterus. Hemorrhage following abortion accounted for three of these deaths. One was curetted after the fever started.

The Committee knows nothing as to the identity of the patient, doctor or even locality in which the death occurred. The information is obtained from the death certificates and from the records submitted by the attending physician, hospital, or any other information available. In some cases, the obtainable information is inadequate for an accurate evaluation but in many the facts are obvious. These records are obtained by representatives of the State Health Department who are themselves highly trained obstetricians and teachers. It is significant that the physicians interviewed for the most part have been most cooperative and anxious to help in reducing the maternal mortality. It is not unlikely that these contacts may have more results than any evaluation which the Committee can make.

The following is a brief abstract of a few of the records studied which tell their own story and illustrate repeated failures:

No. 85.—Placenta previa, post-partum hemorrhage. Bleeding began three weeks before labor. Treatment: calcium and glucose and rest in bed. Bleeding continued until labor. Rapid labor. Pituitrin and packing. Patient died twenty-three minutes after baby's delivery.

No. 1.—Placenta previa—section. Bleeding at seventh month. Seen by physician. Large hemorrhage six weeks later, and sent to hospital. Hemoglobin 55. Section without transfusion or preparation for it. Death followed.

No. 10.—Placenta previa, eighth month pregnancy. Patient sent to hospital because of vaginal bleeding prior to delivery. Pituitrin given. Delivery followed soon after, followed by bleeding and death. No preparation for treatment of hemorrhage.

No. 29.—Placenta previa. Pituitrin. Ruptured uterus. Bleeding before delivery. Pituitrin given before delivery. Ruptured uterus, shock. Death ten minutes after delivery.

No. 5-C.—Central placenta previa. Began to bleed at seventh month and at intervals until full term. First labor pains full term followed by profuse hemorrhage. Six hours later when little bleeding, physician made unsterile vaginal examination. Bleeding worse and patient sent to hospital where she was again examined before being prepared for

delivery. Profuse bleeding again. Blood transfusion and section. Uterus packed. Glucose solution in vein. Pulmonary edema and death.

No. 94.—Post-partum hemorrhage, patient six months' gestation, multipara, toxic. Bag inserted and expelled fourteen hours later. Following day larger bag inserted. Pituitrin. Three days later—fully dilated, membranes ruptured spontaneously. Breech extraction, head caught in cervix, hemorrhage followed. Tear of cervix (?).

No. 55.—Post-partum hemorrhage. Midwife could not deliver placenta; doctor was called and packed vagina. He could not then see the blood. Patient died soon afterward of hemorrhage.

No. 50.—Post-partum hemorrhage. Possibly placenta accreta. Cord pulled off. Manual removal of placenta attempted and failed. Several attempts. Patient died five weeks later of sepsis following hemorrhage.

It would seem helpful to formulate in one's mind the essential factors in the treatment of these various types of hemorrhage. The plans which I describe are those in general use and which I follow myself and believe to have certain advantages. Each individual may have some other which he has found to be most useful, but in any event it would seem better to have some well-defined plan in mind when the treatment of the case is approached. Of course, varying conditions may cause you to modify this, but that would not affect the usefulness of a planned program.

Placenta Previa.—This complication is not very frequent. Some estimate one in 200, while others give one in 1,500 as the incidence. The fact that it is not a frequent occurrence is possibly one of the reasons why its dangers are sometimes taken so lightly. It is said to be more common in multiparae, particularly the central type. The first hemorrhage is practically never fatal but is a warning, which, if recognized and acted upon, may save life. A painless, causeless hemorrhage in the latter months of pregnancy may safely be considered and treated as a placenta previa. No examination should be made until the patient has been admitted to a hospital, blood donor secured and preparation for treatment arranged. This examination should determine location of placenta. If the placenta is felt over the os, a Caesarean section gives better results. If not over the os, several procedures are available. If head is not engaged and there is no evidence of disproportion, rupture of the membranes and tight binder may be useful, or a large bag may be inserted and weight used. When the bag is expelled the membranes may be ruptured and left to Nature or traction by Willett's forceps. If the cervix is fully dilated and baby is not large, version may be done, though the danger of rupture of the lower segment of the uterus is so great that extraction at this time gives a very high mortality. Several cases in this series resulted fatally when this plan was used. Of course, version may be done and the breech brought into the lower segment to control hemorrhage, and the case left for further dilatation after the method of Braxton-Hicks, as the baby is usually not living at this time. If head is engaged and cervix fully dilated, forceps may be used. As soon as a bleeding case is recognized, the blood should be obtained for transfusion. This was the fatal neglect in a number of these cases. The State law recently passed requires all hospitals which admit obstetrical patients to provide facilities for blood transfusion. It is hoped that soon blood plasma may be made generally available, as this eliminates the necessity for blood matching and can always be available.

Abruptio Placenta.—This condition is usually but not always accompanied by pain. Rigidity of uterine wall and evidences of hemorrhage are significant and in some cases without visible bleeding. This is also usually associated with toxemia. Shock is usually evident. There is considerable difference of opinion as to the proper treatment. If the cervix is already open and labor is in progress, bag may be inserted and transfusion given, or in some cases rupture of membranes with tight binder may be sufficient. If cervix is long and hard and the hemorrhage progressing, I believe it is best to do a section, preferably under local anesthesia. Sufficient blood should be available to replace approximately the blood loss.

Post-Partum Hemorrhage.—It will be observed that about one-half of the hemorrhage deaths were due to post-partum hemorrhage. As previously stated, many of these women were obviously handicapped by no prenatal care, some being already anemic and some toxic also, so that it is difficult to criticise the treatment with accuracy, but one is impressed with the unsuccessful management of the third stage of labor. It would be unprofitable to spend all of the time finding fault with the treatment, but it would seem to be suitable that we consider some

of the methods by which the results of management of the third stage of labor might be improved upon.

Dr. R. L. Dickinson[1], 1899, called attention to a method of controlling hemorrhage by elevating the funds in the abdomen rather than shoving it down, yet, so far as I know, he did not apply this principle to the expression of the placenta. Brandt[2], 1933, described a method of expression of the placenta which was based on that principle. Apparently, Brandt's publication did not attract much attention. I had not seen Brandt's paper until about a year ago when I was preparing to publish a description of this method[3] which I had used for several years. The method which I used is based on the same principle as Brandt's, though not exactly the same.

For a long time, I have been impressed with the disadvantages of the Crede method, as generally used and even taught in the textbooks. It consists of two principal motions; one is stimulation of contractions of the uterus, and the other is the expulsion of the placenta by "piston pressure". The first is not objectionable but the downward pressure does increase hemorrhage and may injure the uterine supports and tend to cause retention of the placenta. There can be no doubt that in a very large percentage of cases no noticeable harm comes from it, but in the fatal or severe post-partum cases it may play a large part. The plan of waiting for the placenta to separate while the perineum is repaired under general anesthesia often means the accumulation of a large hematoma back of the placenta as evidenced by the free gush of blood when the placenta is delivered. Numerous observers have shown that separation of the placenta is accomplished almost immediately after the delivery of the baby and probably by the same contraction which accompanies the delivery.

The method already described by Brandt and myself consists principally of placing the palmar surfaces of the fingers on the anterior surface of the fundus with the tips of the fingers near the junction of the lower thin cervical section with the body of the fundus. Gentle pressure upward carries the fundus upward. A clamp on the cord will be an indicator as to the position of the placenta. If the placenta has not been separated and is still in the fundus, the clamp will be carried up. When the fundus is carried up in most of the cases, the placenta will be in the relaxed cervix where gentle pressure with the tips of fingers below the fundus will cause the placenta to appear at the vulva. Many times the placenta can be felt escaping from the cervix by the fingers at that point.

All the unfortunate results of the treatment of the third stage of labor are not represented by deaths. The excessive loss of blood is obviously detrimental to the health of the patient if not immediately replaced. The relation of blood loss to sepsis is well known. The amount of blood lost by the method described is remarkably little. Recently, ergotrate intravenously has been given as the shoulders are being delivered. Davis[4] has reported 5,000 cases treated by this method with satisfactory results. I have used it in a small series of private cases this year, alternating with the use of pituitrin hypodermically after delivery of the placenta. The length of the third stage of labor is slightly decreased, four minutes and twenty-four seconds in 118 ergotrate cases compared with five minutes and twenty-five seconds in seventy-three cases in which pituitrin was given after delivery of placenta. The average blood loss (estimated) was 94 cc. in the ergotrate cases and the other group averaged 141 cc. The Brandt-Andrews method of expression of the placenta was used in both groups.

Only one case had as much as 600 cc. blood loss and this was in an ergotrate case. Another ergotrate case had 500 cc. blood loss. Two cases having pituitrin after delivery of placenta had as much as 500. Ergotrate intravenously is particularly useful in Caesarean sections. If given just as the shoulders are being delivered, the placenta is expelled spontaneously very promptly and with a minimum of hemorrhage. The number of manual extractions (five) in this group can be criticised and the percentage certainly is much higher than a longer observation would probably show. The ergotrate apparently does not appreciably affect that. Extreme care as to asepsis and antisepsis is taken before manually extracting a placenta. The field is freshly prepared, the vagina filled with tincture of merthiolate or zepharin and fresh gloves are used. All the extraction cases have had an afebrile puerperium. I believe it is much better to remove the placenta manually rather than allow the patient to bleed for a protracted time, even though the bleeding is only a continuous ooze.

The 200 cases reviewed occurred in approximately 50,000 births, an incidence of about one death in two hundred and fifty cases. This is a definite improvement over any previous year, but the fact that

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so many women are delivered without fatality is itself a definite danger; a wholesome fear of disaster may be lost, when eternal vigilance is certainly the price of safety for obstetric patients.

CONCLUSIONS

Maternal mortality and morbidity from hemorrhage can be greatly reduced. The following recommendations are suggested by the material studied in this survey:

1. Prenatal care, including planned labor.
2. A more careful consideration and active treatment of bleeding in the latter months of pregnancy, including provision for blood transfusion.
3. Elimination of pituitrin before birth of the baby.
4. Elimination of the Crede method of expression of the placenta or at least the piston pressure part of it.
5. Manual removal of the placenta under s gically clean technique in the occasional tained case with bleeding.
6. Elimination of version and extraction when cervix is not fully dilated.

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Medical Arts Building.

CYSTIC LUNG DISEASE—
A Report of Two Cases With Autopsy Findings.

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In 1938 we reported the case of a young white male who had cystic lung disease, who, during the course of his illness, developed simultaneous bilateral spontaneous pneumothorax on two occasions, but subsequently died and was autopsied. Again, in 1938, we reported two other cases of cystic lung disease, one of whom died and was autopsied.

The purpose of this report is to present two additional cases of cystic lung disease, one occurring in an infant, and the other an elderly man. Both of these patients have died and autopsy studies have been made. In recent years there has been considerable interest in this condition and, although there have appeared numerous articles and case reports, relatively few autopsies have been reported.

CASE I.—This patient, a white male, sixty-seven years of age, was seen at the office July 23, 1940, complaining principally of shortness of breath. His family history was not significant and he had been in good health and had worked regularly as a carpenter. About a year previously he had first noticed shortness of breath on exertion. During the past month it had been so severe that he could get around but very little. A few months ago he developed a productive cough and when seen this was quite troublesome, especially at night, and he expectorated a moderate amount of sputum. As the dyspnea progressed he fatigued easily. His appetite had recently failed him and he had lost weight. The physical examination revealed an elderly white male, well developed, but somewhat emaciated, weighing 117 pounds. Many teeth were missing and the remaining ones were decayed. The heart was displaced to the right, but otherwise seemed normal. The left lung was completely collapsed by pneumothorax and the right lung was emphysematous. Nothing else of significance was noted. Urinalysis showed a trace of albumin and an occasional hyaline and granular cast. Routine blood studies revealed nothing remarkable. The electrocardiogram showed low voltage and some slurring of the q r s complexes in lead one.

On fluoroscopic and x-ray examination of the

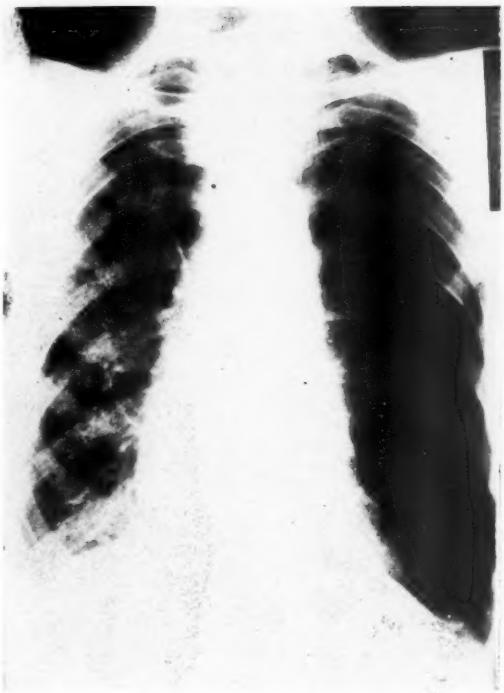

Figure 1. Case 1—Spontaneous pneumothorax with complete collapse of left lung. Large cyst in right lung.

chest the left lung was seen to be completely collapsed by pneumothorax. In the upper lobe of the right lung there was a large oval shadow of lessened

Figure 2. Case 1—Right lung at autopsy. Note large bladder-like cyst, and innumerable smaller cysts.

density which was thought to be a cyst. Other small areas throughout the lower part of the lung were suggestive of numerous small cysts.

The patient's dyspnea was obviously due in large part to the collapse of the left lung and an attempt was made to re-expand this lung. He was hospitalized and large quantities of air were removed one to three times daily for several days, but this failed to produce satisfactory expansion of the lung. Following the removal of three thousand cubic centimeters of air the lung would show considerable expansion, but within twelve hours would be completely collapsed again. A needle was fixed in the chest wall and connected to a water bottle to permit continuous aspiration of air. The patient pulled the needle out several times and this resulted in moderate subcutaneous emphysema. In the meantime the patient became increasingly more dyspneic. An intercostal catheter was inserted into the pleural cavity and connected to a water bottle. Although continuous aspiration of air was thus established the lung would not expand. The patient's condition became progressively worse, his dyspnea more severe, and he died August 15, 1940.

Autopsy: Gross Description: The body is that of an elderly white male. The frame is long, though build is slender. There are no skeletal defects. There is no edema. A mid-line incision is made, exposing the thoracic and peritoneal cavities. The latter contains no free fluid. The gastro-intestinal tract is partially filled with gas and liquid material. It presents no gross pathology. The liver is not enlarged. Serial section reveals no evidence of congenital defects or cysts. The spleen is not enlarged. Cut section shows dark red pulp with clearly outlined Malpighian bodies. The adrenals and pancreas show no gross pathology. The kidneys are large and smooth. Each shows many small cortical cysts. These average about the size of a pea. There is no appreciable thinning of the cortex of either kidney. There is slight increase in amount of pelvic fat and vessels are thick walled. The heart is found in the usual position in the pericardial sac. There is no increase in pericardial fluid. The organ is not enlarged. The chambers are not dilated and walls not unusually thick. The valves are competent. The coronary arteries show considerable thickening, particularly the left. However, the lumen of the latter is patent. Cut sections through the left ventricle show diffuse whitish mottling near the endocardial surface. No fresh areas of infarction encountered. The right lung is adherent posteriorly. The upper lobe shows

a huge cyst about the size of an orange. This occupies about two-thirds of the entire lobe. The remainder of the lung shows pleural surface to be covered with grape-like cysts ranging in size from that of a pea to that of an acorn. There is slight congestion of the lower lobe, but no frank consolidation. The left lung is collapsed and shows great numbers of cysts, which are just beneath the pleural surface. Some of these push up, forming small, irregular pouches. Distribution is generalized, though most marked in upper lobe. No pulmonary emboli can be demonstrated.

Microscopic: *Lungs:* The sections show numerous cysts of all sizes, lined by cubical epithelium. The alveoli themselves are dilated in many areas with thin septal walls. Several sections show inflammatory exudate chiefly composed of polys covering pleural surface. Under this there is a thin layer of granulation tissue. Sections from bases show a few patches of consolidation surrounding bronchioles. The latter are filled with leucocytes and fibrin, and there is desquamation of epithelial lining. *Heart:* The arterioles show thickening of the intimal type. A section taken through left ventricular wall near the apex shows many discrete foci of fibrosis. The vascular channels are wide, and there is a perivascular connective tissue proliferation. Other sections show minimal changes in staining or morphology. *Liver:* There is atrophy of liver cells around portal channels. The interstitial spaces are filled with red blood cells many of which are disintegrated. *Spleen:* There is slight increase in fibrous tissue framework and Malpighian bodies are sharply defined. *Kidneys:* The arterioles are thickened. The glomeruli are intact. There is moderate cloudy swelling of the tubular epithelium.

Final Diagnosis: 1. Polycystic lungs. 2. Arteriosclerosis of coronary arteries with patchy areas of fibrosis in left ventricle. 3. Bilateral cortical cysts of kidneys. 4. Acute pleuritis. 5. Hypostatic bronchopneumonia. 6. Chronic passive congestion of liver.

CASE II.—A male child, six months of age, was admitted to Johnston-Willis Hospital, October 10, 1938, on the service of Dr. James B. Stone. His parents were healthy and delivery was normal. He had been well until about a month prior to admission to the hospital when he developed an upper respiratory infection. During the course of this he developed bilateral otitis media and both ear drums had been incised. He subsequently had a persistent diarrhea and his stools frequently contained blood. On admission to the hospital he was having fever of about 101 degrees daily, there was a purulent discharge from both ears, he was having daily from ten to twelve stools, many of which contained blood, and he appeared dehydrated. The urinalysis was normal. The blood picture was that of a moderately severe microcytic anemia with a leukopenia. Of sev-

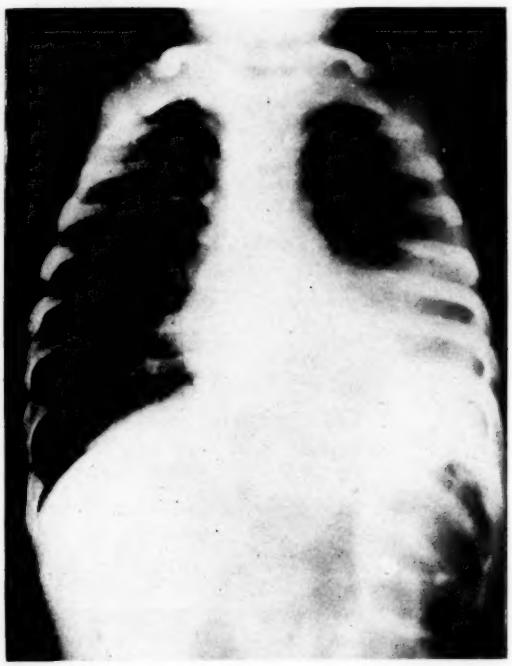

Figure 3. Case 2—Showing consolidation of left lower lobe. Probable atelectasis in right cardio-phrenic angle. (4-28-39)

eral leukocyte counts the highest was 5,700, the lowest 2,100. Cultures from the ears showed a mixture of staphylococcus albus and bacillus influenzae. The patient had no cough at this time and x-ray examination of the chest showed nothing more than some increase in the hilum shadows and an increase in bronchial and pulmonic markings. Soon after entering the hospital, however, he developed a diffuse bronchitis and his chest was x-rayed again, with the same result. He was treated for his ear infection and diarrhea along general lines and was given sulfanilamide. He was also given several small transfusions. He improved very slowly and after about two months his otitis apparently had cleared up; he was having two to three soft stools daily,

was taking feedings well and gaining weight, and was discharged from the hospital December 24,1938.

Patient was re-admitted to the hospital February 10, 1939. He had been getting along very well and gaining weight until about ten days previously when he developed a head cold and cough. This had become quite severe and was accompanied by high fever. At this time the findings in the lungs were those of a diffuse bronchopneumonia. The ears apparently were not involved. Examination of the blood showed a moderate anemia and leukopenia.

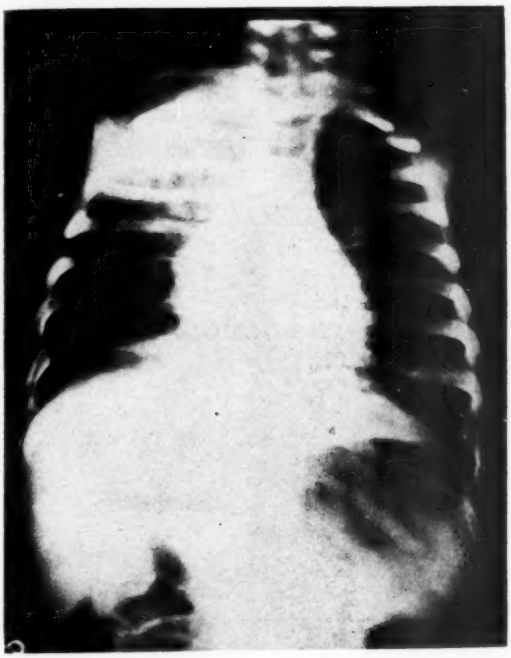

Figure 3. Case 2—Consolidation of right upper lobe. (5-18-39)

Under treatment he improved and was discharged from the hospital March 19, 1939, about five weeks after admission. During the next few weeks he had frequent mild colds of short duration but, in spite of these, took his food well and gained weight. On April 28, 1939, he was taken rather abruptly ill with high fever and severe coughing and was again brought to the hospital. On this admission he had what was thought to be a pneumonic consolidation of the left lower lobe with small scattered areas of consolidation in the right lung. There was at this time a total leukocyte count of 22,000, with a marked increase in the polymorphonuclear cells. He was given sulfapyridine and responded dramatically. His temperature was normal within six days and he was discharged on the thirteenth day. X-ray examination of the lungs on discharge from the hospital showed both lungs to be clear. The patient was at home but two days when he again had a sudden rise in temperature and cough, and was returned to the hospital. On this admission he was found to have a consolidation of the right upper lobe. He was again given sulfapyridine but this time responded slowly. He remained in the hospital for the next four months during which time he had two more episodes of what appeared to be pneumonia. On one occasion there was consolidation of the right lower lobe, and on another the left lower lobe. He frequently had recurrences of the diarrhea and once a return of otitis media. In the meantime bronchoscopy had been done, which revealed only a large quantity of purulent material in all the bronchi. In view of the repeated attacks of pulmonary infection, congenital cystic lung disease was suspected although this diagnosis could not be definitely established from the x-ray films. At the request of his parents he was discharged from the hospital September 17, 1939. His condition was poor and became progressively worse and he lived only a short time after leaving the hospital.

Autopsy: Gross Description: The body is that of a year old male infant. The skin is tightly stretched on the frame, the mucous membranes dry and parched, the eyeballs sunken. The fingers and toes show slight clubbing. The abdomen is slightly distended and there is bluish discoloration of the skin of the lower abdomen. No deformities. There is extremely little subcutaneous fat. The thorax is opened by a T-shaped incision. The lungs are tightly plastered to the chest wall, both anteriorly and posteriorly. There is no free fluid. The thymus is large—weighs 45 grams. The lungs and heart in the pericardial sac are removed together. The left lung is spongy in consistency and shows no evidence of true consolidation, although there is a moderate degree of dependent congestion at the base. No pulmonary emboli are encountered. The bronchial tree is essentially normal. Some of the smaller sub-divisions of the bronchi appear dilated and thickened. The right lung shows numerous whitish areas on its external surface about the size of a pea. Cut section reveals entire upper lobe to have a honey-combed appearance. Close inspection reveals this to be due to multiple small cysts which, although present

throughout the entire lung, are more marked in the upper lobes. These are filled with thick creamy yellowish pus and the lung shows numerous confluent patches of consolidations. The heart is not enlarged. There is no increase of pericardial fluid. The organ itself shows no dilatation of chambers, the valves are competent and the myocardium appears healthy though pale. Autopsy was limited to chest.

Microscopic: Sections through the right upper lobe of the lung show the alveoli to be filled with fibrin, red blood cells and leucocytes, many of which are polys though predominantly mononuclears. There are scattered cavities lined with cuboidal epithelium and filled with leucocytes and filbrin. The capillaries are uniformly dilated and engorged with red blood cells. The thymus is unimportant.

Final Diagnosis: 1. Congenital polycystic lungs —chiefly right upper lobe. 2. Lobar pneumonia—right upper. 3. Confluent bronchopneumonia—lower lobes both lungs and right upper. 4. Malnutrition. 5. Dehydration.

COMMENT

The two cases present different manifestations of cystic lung disease. The first, occurring in an elderly man, represents that type of the disease characterized by multiple large bladder-like cysts. The condition had probably been present for a long time and had produced few symptoms until spontaneous pneumothorax occurred. There was no clinical evidence of infection and the predominant symptom, dyspnea, was the result of gradual diminution of functioning lung tissue, and climaxed by collapse of the lung. The latter was caused by rupture of a cyst and the resulting spontaneous pneumothorax.

The second case occurred in an infant and showed innumerable small cysts which had probably been present since birth. These were infected repeatedly and for long periods of time, and the effect of toxemia was marked.

Professional Building.

INDEPENDENT OCCURRENCE OF MULTIPLE PULMONARY ABSCESSES—REPORT OF CASE.

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Multilocular or multiple abscesses of one or both lungs are observed frequently, but complete resolution of a pulmonary abscess with occurrence several months later of an independent abscess in the other lung is seldom encountered. The rarity of this sequence of events warrants the report of the following case.

The patient, a man 27 years of age, was admitted to Memorial Hospital on May 19, 1940, complaining of pain in the left side of the thorax and cough with expectoration of foul-tasting, malodorous sputum. Fourteen years previously he had been "run down", and because an intracutaneous injection of tuberculin had produced a positive reaction, he had been admitted to a sanatorium for tuberculosis, where he had remained for fourteen months with satisfactory improvement. Apparently a definite tuberculous lesion was not demonstrated.

He had had various childhood diseases and pneumonia at an early age with uncomplicated recovery. Tonsillectomy had been performed several years prior to the present illness. Four weeks prior to admission to hospital the patient noted dull pain in the left thoracic region, the trouble being diagnosed pleurisy by his physician. He felt weak and preferred to remain inactive most of the time. When he was ambulant he noted shortness of breath and slight edema of the ankles. After two weeks, cough developed and soon became productive; as much as a cupful of foul sputum might be expectorated during a period of twenty-four hours.

The patient appeared flushed, and the temperature was 101.6 degrees; the pulse rate was 105 and respiration 28; the systolic blood pressure was

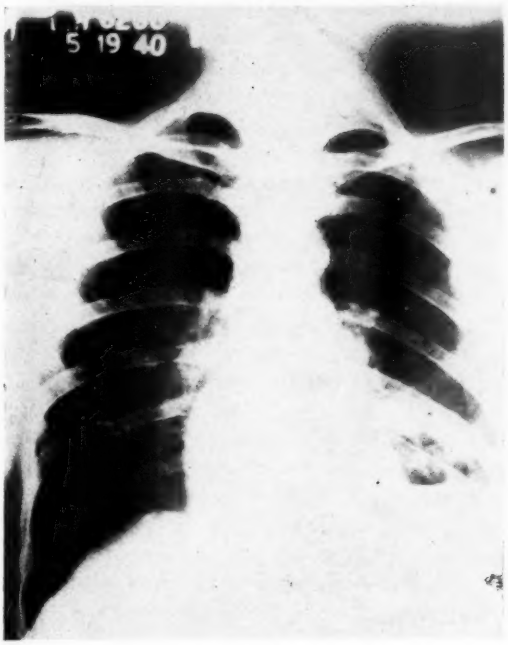


Fig. 1.—A. Abscess lower lobe left lung with fluid level.

B. Appearance of thorax eleven days later, showing almost complete resolution of abscess.

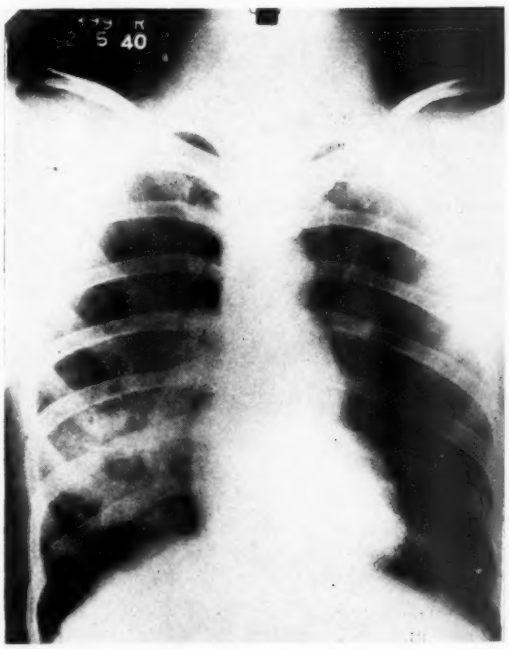
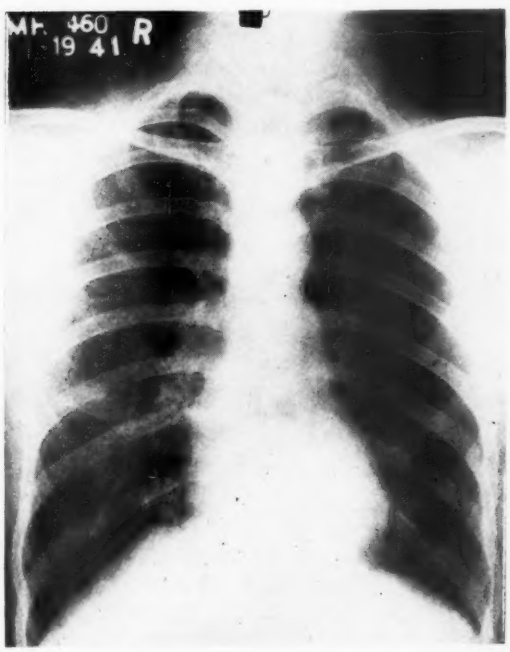


Fig. 2.—A. Infiltration with apparent excavation at base of right lung.



B. Roentgenoscopic appearance of thorax six weeks later, showing almost complete disappearance of area of infiltration.

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130 with a corresponding diastolic pressure of 70. The teeth were in need of repair, and the gums were badly diseased. Rhonchi were present throughout both lungs. At the base of the left lung posteriorly the percussion note was impaired, and breath sounds and tactile and vocal fremitus were diminished over the same area. In other respects, general physical examination disclosed nothing abnormal.

Three examinations of sputum failed to reveal Bacilli of tuberculosis. Other laboratory findings were irrelevant save for 39,400 leukocytes per cubic millimeter of blood, and an estimation of the hemoglobin which was 60 per cent. Roentgenogram of the thorax showed a cavity in the lower lobe of the left lung with a fluid level and calcified nodules in the left hilar area (Fig. 1. A). The diagnosis was abscess in the lower lobe of the left lung.

Bronchoscopic examination under local anesthesia on May 21, 1940, revealed pus exuding from the posterior division of the bronchus to the lower lobe of the left lung with narrowing of the bronchial lumen. The stenotic bronchus was dilated with forceps, and the abscess was thoroughly aspirated. The following day the patient had normal temperature; within two or three days cough and expectoration had disappeared, and on May 31, 1940, he was permitted to return home. Roentgenogram at the time of dismissal showed the cavity completely closed, and the major portion of the surrounding area of infiltration had disappeared (Fig. 1-B). Leukocytes numbered 6,000 per cubic millimeter of blood, and estimation of the hemoglobin showed an increase to 90 per cent.

The patient was able to return to work within a month and remained well until November 1, 1940, when he contracted upper respiratory infection. He continued for three days with his work as a salesman, but, because of chills, fever, and expectoration of a small amount of blood, he was hospitalized elsewhere where he remained until December 8, 1940, when he was transferred to Memorial Hospital for observation. At onset of the second illness roentgenography of the thorax disclosed an abscess in the lower lobe of the right lung. The left side appeared normal (Fig. 2-A). The temperature was elevated to 104 degrees. A slight, non-productive cough, which he had had, disappeared before the patient was hospitalized here.

The temperature was normal at the time of admission to Memorial Hospital and remained so during hospitalization. Physical examination revealed diminished breath sounds with bronchial breathing and many moist rales at the base of the right lung posteriorly, as well as an impaired percussion note over this region. Three examinations of sputum were again negative for bacilli of tuberculosis. Leukocytes numbered 8,800 per cubic millimeter of blood with a hemoglobin estimation of 84 per cent. The patient did not have any specific therapy, and as signs of disease in the thorax had disappeared and he felt well, he was dismissed from hospital on December 16, 1940. A month later the patient was entirely free from symptoms, and the roentgenogram demonstrated nothing abnormal (Fig. 2-B).

SUMMARY

A patient is described, who suffered from a single abscess in the lower lobe of the left lung. Although the abscess was of uncertain etiology, it probably resulted from aspiration of material from infected teeth. Rapid resolution followed bronchoscopic aspiration. After five months of health, the patient had another abscess, located this time in the lower lobe of the right lung; it resolved spontaneously.

OCULAR TUBERCULOSIS: A REVIEW AND REPORT OF FOUR CASES.*

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Much of the literature on ocular tuberculosis is the result of the efforts of observers outside of America. However, an intensive study of the problem has been carried on at Wilmer Institute, at Johns Hopkins Hospital. As the fruit of much research, effort and study, Dr. Alan C. Woods and his co-workers have written extensively in the past few years. They have correlated and, in an orderly way, presented their observations on the diagnosis, therapy and immunology of ocular tuberculosis. Having nothing to add to

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these works, I review them with the desire to refresh our memory on a most important subject.

From the study of eyes with known tuberculous lesions, which have run a given course, and from animal experimentation in which tuberculous lesions have been produced by the injections of tubercle bacilli, three general types of ocular tuberculosis may be recognized.

First: The characteristic lesion with nodular iritis, tuberculoma of anterior or posterior uvea and miliary tubercles of the choroid.

Second: Lesions of the cornea, iris and choroid in which the attacks are self-limiting, have a tendency to recur, and lack of symptoms indicating tuberculosis as the cause.

Third: The rapidly progressive type with exudation, caseation, and ulceration, which perforate and destroy the eye in a short while.

The diagnosis of tuberculosis of the eye is, in many cases, not a positive diagnosis, but a presumptive or tentative one. We are unable to isolate the tubercle bacillus from the eye; biopsy is impossible and the other laboratory measures are of little or no value.

Our diagnosis is, therefore, based on:

First: The appearances and course of the disease, with its tendency to subside spontaneously and recur. This history, with the presence of old scars and the appearance of new lesions, first directs our attention towards the possibility of tuberculosis as an etiological factor.

Second: The exclusion of other causative factors, such as infected teeth, tonsils, sinuses, especially the gall-bladder as foci of infection, and syphilis, diabetes and other general diseased conditions must be carried out as far as possible. After the removal of possible foci of infection, the behavior of the eye may aid in establishing a diagnosis.

The lesions most difficult to differentiate from tuberculosis are the other infectious granulomata of the eye. Syphilis is usually recognized by a positive serological test in adults. Stigmata of the disease, as seen in teeth, face, etc., and the history of parental syphilis, are useful in congenital lesions.

Sarcoid is an infectious granulomatous disease characterized by nodular masses, especially about lids and face. Both eyes are usually affected; the reaction to tuberculin is very sluggish and antisyphilitic treatment is of no value, even though the Wassermann test may be positive. There may be transient paralysis of the cranial nerves and swelling of the parotid gland. Microscopically, the lesion simulates tuberculosis except for the absence of central necrosis, though some consider them one disease.

Brucellosis may simulate ocular tuberculosis and there is evidence that periodic ophthalmia and moon blindness in horses is due to this infection. Agglutination tests should be made in an effort to eliminate it. No authentic case of human ocular brucellosis has been reported.

Lymphogranuloma inguinale may be an entity, but little is yet know of its true effect on the eye.

Third: The general tuberculosis state of the patient is not conclusive evidence of ocular tuberculosis but is further presumption of such a state. It is generally believed that the eye lesion is secondary to some distant tuberculous focus elsewhere in the body. Few cases of ocular tuberculosis have been reported among active pulmonary tuberculosis cases in sanitoria (1 per cent). In genito-urinary and bone tuberculosis it is more frequent (7 per cent). Werdenburg has stated that the lymph glands at the hilus of the lungs are the usual primary focus. He reported that 60 per cent of his cases showed X-ray signs of hilus tuberculosis but at Wilmer Institute only 50 per cent showed X-ray evidence of distant tuberculous lesions. It may be stated, then, that, while the evidence is not conclusive, hilus tuberculosis lends weight to the possibility of ocular tuberculosis.

Fourth: The tuberculin test usually employed is the Manteau or intradermal method but is not conclusive evidence of ocular tuberculosis, since many normal individuals may react to .1 mg.

Of 180 diagnosed cases of ocular tuberculosis at Wilmer Institute:

96 or 53.4% reacted positively to .001 mg. tuberculin;
75 or 41.6% reacted positively to .01 mg. tuberculin;
9 or 5% reacted positively to .1 mg. tuberculin.

In ten cases of proven ocular tuberculosis (biopsy, etc.),

60% reacted to .001 mg. tuberculin;
20% reacted to .01 mg. tuberculin;
20% reacted to .1 mg. tuberculin.

The conclusions drawn from these studies are that a negative tuberculin skin test does not rule out ocular tuberculosis, nor does a positive skin test mean that a given ocular lesion is tuberculous. All that can be said is that, a high degree of skin sensitivity suggests that the ocular lesion is tuberculous.

XUM

Other tests such as complement fixation, sedimentation rate and blood cultures are of little value.

It has been determined that skin sensitivity is fairly parallel with ocular sensitivity.

Fifth: The therapeutic test is of some value in diagnosis. Not infrequently the patient shows immediate and dramatic response to tuberculin therapy. It should not be forgotten, however, that this is a self-limiting disease and the improvement may be simply a recession of the inflammation.

Conclusions drawn from the inoculation of animals with tubercle bacilli are that immunity and allergy are involved in the spread of the ocular lesion and determine the course of the disease.

It is probable that the process may be explained by the following sequence of events:

Tubercle bacilli from a distant lesion, probably a hilus gland, are deposited by the blood stream into the eye. The bacilli produce sensitivity in the eye and after a few weeks further tuberculo-protein brought to the sensitive eye produces inflammation. If the eye is not very sensitive to tuberculo-protein and the number of bacilli are not too great, a slow development of disseminated ocular tuberculosis takes place, with tubercle formation. Encapsulation occurs and the spread and growth of the organisms is controlled. The inflammation produced, is of low grade and self-limiting. With the progression of the acute inflammatory stage, there is a gradual diminution or exhaustion of the vascular reactivity of the eye. With this exhaustion the eye becomes quiescent and healing and scarring occur. If all the bacilli have not been destroyed, however, the eye again becomes hypersensitive in time and the inflammation recurs.

If, on the other hand, the many virulent bacilli lodge in an eye and sensitivity is great, further tuberculo-protein results in an acute and fulminating inflammation, the organisms rapidly grow and the lesion spreads, causing caseation and perforation with loss of the eye. This may be graphically stated as:

Virulence, number of bacteria, degree of allergy determine resistance to the disease.

Low allergy, virulent bacilli, high resistance, mild inflammation, soon quiescent.

High allergy, many virulent bacilli, low resistance, yield spreading, caseating tuberculosis with perforation and loss of the eye.

Therapy: Local measures have little or no effect on ocular tuberculosis. Colloidal gold is of questionable value and some danger, while X-ray therapy might cause serious activity. Phototherapy and Beta radium rays are sometimes spectacularly helpful in corneal tuberculosis, probably by increasing immune bodies.

The objectives sought in the treatment of ocular tuberculosis are the permanent removal of the fatal ocular sensitivity to tuberculo-protein (or allergy) and subsequent encapsulation and destruction of the tubercle bacilli.

It has been shown (P. A. Lewis) that when colloid is injected into a patient, it has a predilection for inflammatory tissue and is precipitated in it. Tuberculin is a colloid and it has been shown to have a predilection for the tuberculous inflammation and has been found in tubercles.

To remove the ocular sensitivity to tuberculo-protein small doses of tuberculin are given intramuscularly in slowly ascending doses. These injections begin with a dose much below the ocular sensitivity and an effort is made to carry this up to 100 mg., if possible to do so without reaction, and this maximum dose is maintained weekly for one year or more. Every three months the patient is re-examined, over a period of several years, to determine if sensitivity has recurred. If the tuberculin test is positive with small doses, treatment is again begun even though the eye lesion is quiet.

Great care should be exercised to avoid either a local or focal reaction to the tuberculin, for ocular sensitivity is probably greater than that of the skin and a reaction may be fatal to the eye.

This prolonged desensitizing treatment is in contradistinction to the old perifocal method, in which a course of tuberculin was given and, when the eye became quiet, specific treatment was stopped, hoping for local immunity instead of desensitization.

In the fulminating, caseating type of ocular tuberculosis, the eye is so sensitive that even the smallest doses of tuberculin may cause it to flare up and spread the lesion. These cases, usually occurring in the anterior segment of the eye, have been found to lack antibodies in the aqueous. After paracentesis the restored aqueous contains many times as many antibodies as the original aqueous. A paracentesis in these cases is often followed by dramatic improvement in the condition and then tuberculin treatment can be carried on without danger.

As in other forms of tuberculosis, the patient's resistance and immunity are increased by rest, freedom

from strain, cleanliness, fresh air, sunshine and diet. While sanitarium treatment is not necessary, these general measures should not be neglected.

Case 1. Mrs. J. C. H., age thirty-one. This apparently healthy young woman had choroiditis in 1929. Her tonsils had been removed nine years prior to this attack, and at this time a secondary tonsillectomy was done. There was a central scotoma at this time which gradually cleared up.

Patient has lost three children—one miscarriage at three months, one abnormal child died fifteen months after birth, and one child lived a week.

There is a history of syphilis in parents, contracted since her birth, but no personal illnesses other than eye trouble.

In January, 1935, patient had slight attack of choroiditis, at which time atropine and potassium iodide were given. The eye cleared up in about four weeks.

In October, 1938, patient had an attack of choroiditis in right eye. At this time vision was 20/50. In the macula region there was an old scar with some evidence of activity just above the macula and edema extending into it. The scotoma covered the point of fixation but varied in density and size.

This patient was studied thoroughly. All blood dyscrasias, foci of infection, including gall-bladder and cervix disorders were carefully ruled out. Her blood, Kahn and Wassermann, was negative; her spinal fluid negative; and colloidal gold curve normal. X-ray of chest showed few old hilus glands.

A tuberculin test was done and was negative with 1/100 mg., and two plus with 1/10 mg. O.T. After consultation with Dr. Edwin Burton, at Charlottesville, tuberculin therapy was decided upon in spite of low skin reactivity. The lesion responded nicely, central vision returned and the lesion healed clinically.

No further tuberculin treatment was given after the 10 mgm. dose was given by gradually ascending doses.

In April, 1940, another attack occurred. This time the active lesion was at site of previous excentric one, but macula was very edematous and scotoma central and large. The spot was enlarged and there was a small, round active lesion just medial to nerve head margin. This was dirty white with fuzzy margins. There were some fine floaters in vitreous, disc was indistinct, and her vision was 20/200.

Potassium iodide, vitamin B, and general constructive treatment was instituted, while again she was carefully studied for a focus of infection or disease. Nothing could be found other than a two plus tuberculin reaction to 1/10 mg. O.T.

She was referred to Hopkins for consultation and after careful study a diagnosis of miliary tuberculosis of the choroid was made there.

She is under tuberculin treatment now, and the scotoma has become excentric and her vision is 20/25. The lesions are inactive and healed in appearance and the media has entirely cleared up.

In spite of feeling the lues might be responsible here, every clinical study at three different times was negative. The old perifocal treatment here was entirely inadequate and the disease recurred. The lesions were typically small rounded areas like tubercles. The clinical results of treatment have been dramatic. She will continue her treatment over a period of at least two years.

Case 2. Mrs. H. M. C., age fifty-five. In childhood she had trouble with glands of neck. Twelve or fifteen years ago patient had ulcers on both corneas and they were slow to heal and recurrent in nature. Her tonsils were removed and in about one year, after tonsillectomy, the ulcers healed, leaving scars in both eyes. Following this the eyes would get red and inflamed but no ulcers were noted.

Otherwise, the patient had been well and stout. In April, 1939, a small red area appeared on the sclera of the right eye, external to limbus. This was treated by drops but failed to subside. In fact, the lesion spread for two weeks, so that, when we were consulted, it was 2 by 1½ cm., violet reddish color, raised, and not movable with conjunctiva. There was ciliary congestion, the corneas scarred and her vision was 20/50 with a glass.

Her upper teeth were missing and the lowers negative by repeated X-ray examinations. Her sinuses were, clinically and from X-ray study, negative. Her Wassermann and Kahn were negative.

Physically, her chest was entirely negative but no chest X-ray was done. The cervical glands were not palpable.

1/100 mg. of P.P.D. was given and at the end of forty-eight hours a three plus reaction was present. This was raised, brownish red and vesiculated and lasted for many weeks.

She was treated with tuberculin and in a few

weeks the lesion had disappeared except for some edematous appearance at site of lesion.

On seeing her April, 1940, a tuberculin test was done and was 2 plus with 1/100 mg. O.T. Further treatment was advised in spite of a quiet eye.

Case 3. Mrs. M. M. R., age seventy-three. About twenty-five years ago patient had ulcers on both shins and arms. These failed to respond to treatment and large area of cheesy material was scraped out. This was white and hard and when the swellings were opened up, white watery material exuded. Her blood was sent away and, "she was given an injection of medicine in her arm". Immediately the ulcers healed and no further trouble was experienced and no further treatment given.

Her health has never been good but no specific ailments could be elicited. She has several normal and healthy children but her twenty-three-year-old grand-daughter has active tuberculosis at this time and is awaiting sanitorial treatment.

She consulted me about her eye August 9, 1939, at which time her left eye had been hurting, was red, and had many floating objects before it. This had been going on about one week or ten days when first seen.

There were deposits on the cornea which were larger than usual descemetitis and more centrally arranged, and the iris was adherent at several points. There were about five dirty white masses lying at edge of the pupil and between the anterior capsule and the iris. These were rounded in appearance and varied from one or two millimeters in diameter to very much smaller ones.

Her right vision was normal and the left corrected to 20/40. There was ciliary congestion with cells in the anterior chamber and uveal inflammation with vitreous opacities.

Her blood, Wassermann and Kahn, tests were negative. Her teeth were artificial and gums X-rayed clear. Her tonsils were small and unimportant in appearance and her sinuses, clinically and from X-ray study, negative. Her physical examination, including kidney study, was essentially negative. Agglutination tests were negative. X-ray of her chest showed old fibrosis and calcified glands. Her skin reacted 3 plus to 1/100 O.T. and this remained for many weeks as a brown spot. Tuberculin treatment was begun and the Keppie nodules dramatically disappeared. The exudate on the cornea cleared and the vitreous opacities disappeared. The eye became entirely quiescent and, when seen April 19, 1940, nine months after first visit, her vision was corrected to 20/20, pupil freely movable, with no evidence of any disease. She is continuing her tuberculin therapy.

Case 4. Mrs. J. T., age fifty. For many years patient has had trouble with her eyes becoming inflamed. She has had ulcers of both eyes. She would have a severe attack of inflammation and this would subside and sometimes entirely clear up. Her vision has been impaired for years because of scars on both corneas.

In August, 1938, patient had another attack of inflammation in the right eye. This appeared as a white area on the cornea at its margin and gradually spread towards center. She treated this as she had in the past, but it failed to respond. Her local physician treated it with drops and finally she was referred to Dr. E. R. Miller, of Harrisonburg.

Under date of October 14, 1938, Dr. Miller made a note that there was "a large, heavy opacity of the right cornea with ciliary congestion". Her vision at this time was light perception. The old scars were more marked on the left eye, and vision was 20/200. She was treated with hot applications and atropine and referred to me after failure of eye to improve. The process was very slow, but, in spite of treatment, the lesion spread.

Several decayed teeth were removed and on November 11, 1938, infected tonsils were removed. Her sinuses were apparently normal and her Kahn and Wassermann negative.

The patient was lost sight of until January, 1939, two months after first being seen by me. The lesion was no smaller and the eye still inflamed and was a heavy, dirty, white, elevated mass of exudate which stained lightly with fluorescin and was vascularized. It covered two-fifths of the cornea and extended irregularly over half of pupil.

On January 11, 1939, 1/100 mg. of old tuberculin was given and a four plus reaction obtained. This test left a brownish disquamated area which lasted for weeks.

X-ray of chest showed fibrosis of the left apex, and old hilus lesions. Agglutination tests were negative. Tuberculin test showed one plus with strong P.P.D. 1/10 cc.

Under tuberculin treatment the corneal lesion promptly began to clear by thinning centrally. The progressive clearing has continued until, at the pres-

ent time, there are a few scars on cornea, excentricly placed. The patient was seen at her home and says she sees well in this eye, but has not returned to office for further study.

This patient was given ascending doses of tuberculin up to 100 mg., and the eye has remained quiescent for over one year. She will be encouraged to return for further study and treatment, if indicated.

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TORULA HISTOLYTICA (BLASTOMYCOIDES HISTOLYTICA) MENINGITIS: Report of a Case With Recovery

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In a recent article Robertson and others[1] reported sixty-five cases of infection of the central nervous system caused by the Torula Histolytica. Magruder[2] has added three cases to the literature and Holt[3] one. Additional important information is included in articles by Shaw[7], Longmire[8] and Levine[9].

The case here recorded is of additional interest in that the patient recovered from the acute illness and returned to the hospital for examination and further study two years later.

CASE REPORT

K. J., colored female, age eighteen. This colored female was admitted to St. Philip Hospital on 3-20-38, because of headache, stiffness of the neck and delirium. From the patient's family it was learned that she had been in good health until three weeks before this date. At this time she began complaining of severe frontal headache which was continuous in character, and failed to respond to the usual therapeutic measures. Two days after the onset, she was seen by her family physician, and a tentative diagnosis of migraine and sinus trouble was made. Shortly after this she began to complain of a sore neck, stabbing pains about the eyes and failing vision. These symptoms remained essentially unchanged until one week before admission when she became irrational, and seemed to suffer more with headache and pains about the eyes. The parents felt that she had had some fever during the entire sickness, but there was no record to this effect. There had been no chills.

In other respects her history was negative except that she was known to have injured her right foot about one week before the onset of her headache, and this member had become swollen and sore. It had apparently healed completely after six or seven days.

Physical examination: A general survey showed a well developed and nourished, but dehydrated young negress who was lying flat in bed, irrational and uncooperative; temperature 104, pulse 140, respiration 28, blood pressure 140/85. The cranium and scalp were negative except for rather marked tenderness over the sinuses. There was bone and air deafness on the right. On examination of the eyes, the pupils were regular, equal and slightly dilated; they reacted very sluggishly to light and accommodation. There appeared to be complete loss of vision bilaterally, but the patient's lack of ability to cooperate prevented an exhaustive examination. A bilateral vertical nystagmus was present, and there was bilateral sixth nerve paralysis. The right optic disk showed a slight degree of choking, and there was marginal blurring of the left disk. The neck was rigid and resisted motion in all directions. On examination of the chest and lungs there were no pathologic findings. The heart tones were clear and of good quality. The abdominal examination was negative. There was a small encrustated lesion on the dorsum of the right foot without evidence of surrounding cellulitis or lymphangitis.

Reflexes	*Right*	*Left*
Biceps	0	+
Triceps	0	+
Hoffman	0	0
Abdominal	++	++

Reflexes	*Right*	*Left*
Patellar	0	++
Achilles	0	++
Anklé clonus	0	0
Babinski	0	0
Brudzinski and Kernig	++++	++++

As a result of these findings a tentative diagnosis was made of: 1. tuberculous meningitis, or 2. brain abscess.

A lumbar puncture done immediately after entrance into the hospital showed slightly hazy fluid under 400 mm. of pressure, and it was noted at this time that there were present in the fluid a number of small flecks of white material. Examination of the spinal fluid showed white blood cells 262, polymorphonuclear neutrophiles 88 per cent, lymphocytes 12 per cent, sugar 17 mgms., chlorides 669 mgms., mastic 3-3-4-1-0, globulin heavy trace, Wassermann negative. Smear and culture were negative for the usual organisms, including meningococci, pneumococci, pyogenic organisms and tubercular bacilli.

General laboratory findings: Urine: color, dark brown; reaction, acid; specific gravity, 1.020; albumen and sugar, negative; acetone, positive; white blood cells, 1-2; red blood cells, 0; casts, 0. Blood: Red blood cells, 4,400,000; hemoglobin, 82 per cent; white blood cells, 10,900; polymorphonuclear neutrophiles, 81 per cent; lymphocytes, 13 per cent; monocytes, 6 per cent. The blood Wassermann was negative. Blood cultures were negative. Tuberculin test 1-10,000 was negative.

Hospital course: After admission to the hospital, the patient continued to run a constant temperature elevation, with variations from 99 to 103.2, and with a pulse rate of 90 to 140 per minute, for about ten days. During this time she was irrational, restless and very difficult to manage, and there was no clinical improvement noted except that she regained her hearing in the right ear. Treatment consisted solely of fluids orally, sedatives and repeated lumbar punctures with findings showing no material change from those noted in the first examination. The pressure remained constantly elevated, and the white blood cell count of the spinal fluid varied from 131 to 333 per cubic millimeter. On 4-2-38 it was learned from the laboratory that yeast-like bodies had been found in four of the five specimens of spinal fluid examined; and that, although the exact classification had not been made, they were thought to be Torula Histolytica.

In view of these findings active therapy was begun with iodides and, since the patient could not cooperate sufficiently to take medication by mouth, intravenous sodium iodide was given. Intravenous injections of 15 gr. were given daily from 4-2-38 to 4-5-38. At this time her condition appeared to have become much worse with extreme restlessness and occasional attacks of vomiting which were described as almost projectile in character. No further choking of the optic disk was noted, but it was decided to do a cisternal puncture for fear that a block might have occurred. This was done, and clear fluid under 200 mm. of pressure was obtained. On 4-9-38 treatment with intravenous iodides was begun again, and the dose was increased to 30 grs. daily.

On 4-4-38, two days after the beginning of iodide therapy, there began a slow but definite decline in the temperature curve; and in the week, between 4-7-38 and 4-14-38 there was no elevation above 100 degrees Fahrenheit. The patient continued to vomit three or four times daily, but seemed more alert and cooperative. By 4-20-38 the temperature had established itself at a normal level, and the vomiting had completely subsided. At this time it was noted that she could distinguish light from dark, and could move her right eye laterally. She was now mentally alert, and talked rationally with the examiner. The intravenous injections of sodium iodide were discontinued on 4-20-38, and she was placed on saturated solution of potassium iodide orally to reach a maximum dose of 20 drops three times a day. She remained under observation in the hospital until 6-23-38, during which period she showed no further change in her general physical condition.

On 3-6-40 her family physician wrote to the effect that she was then in excellent general health, and could distinguish the shadowy outline of an individual.

On 9-4-40 she was referred again to St. Philip Hospital because of a recurrence of headache and slight stiffness of the neck. These symptoms had been present for about seven days prior to her readmission. Physican examination showed the following feautres: Temperature 99.8; pulse 100; respiration 22; blood pressure 124/80. The patient was well nourished and mentally alert, but complaining rather bitterly of headache. An extreme degree of optic atrophy was present bilaterally. Light perception was possible, but no other visual abilities

were retained. There was a scaling, brawny dermatitis on the dorsum of each foot. A lumber puncture revealed spinal fluid under a pressure of 330 mm. in which there were thirty-two white blood cells of which twenty-eight were polymorphonuclear neutrophiles. The protein content of the fluid was 125 mgm. Cultures from the spinal fluid and urine were positive for Torula Histolytica. The patient was discharged to her family physician after three days with instructions to continue the use of iodides in large doses.

COMMENT

Stoddard and Cutler[4], in 1916, using the organism isolated by Frothingham[6] in 1902 were able to produce brain lesions by the inoculation of experimental animals. The organism was called Torula Histolytica by these workers. Freeman[5] summarized the available literature and offered important observations on the disease. Clinically the condition is characterized by headache, nuchal rigidity, insomnia, amblyopia and diplopia. It is particularly confusing on account of its close resemblance to tuberculous meningitis, brain abscess and brain tumor. At the time of his report Freeman found no record of a case with recovery, and the disease was considered by him to carry a 100 per cent mortality rate. The meningitis produced by the Torula Histolytica causes a granulomatous lesion at the base of the brain. The cerebral cortex is invaded in approximately 50 per cent of the cases, and is characterized by the formation of blisters or pits which contain a clear or turbid gelatinous material. Microscopically the meningeal lesions show a diffuse or focal granulomatous change with endothelial hyperplasia, fibrosis and giant cell formation. The perivascular lesions show the formation of cysts with collections of organisms and their capsules. The granulomata appeared to be aggregates of endothelial cells which have phagocytized the organism. In certain cases embolic lesions result in which capillaries are occluded by large groups of organisms.

CONCLUSIONS

1. Meningitis caused by Torula Histolytica is being recognized with increasing frequency.

2. The mortality rate remains high and no specific treatment has been devised. Iodides remain the treatment of choice.

3. When recovery from acute infection occurs the disease usually becomes chronic and complete recovery is rare.

4. Invasion of the brain is more frequent in Torula Meningitis than in bacterial infections of the meninges.

5. Involvement of the cranial nerves results in most cases.

6. The case reported is one of proven Torula Histolytica infection which survived the acute invasion. Examined two years later the organism was still found in the spinal fluid, and the patient presented symptoms and signs of a chronic meningeal infection.

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VERUMONTANITIS.*

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This paper is based on data from a series of cases taken from the records of the past eighteen months, which were given the diagnosis of verumontanitis or seminal colliculitis for want of a more comprehensive term describing the symptom complex attributable to congestive and inflammatory lesions of the prostatic urethra, prostate and seminal vesicles. Pathology of the verumontanum was a common finding in all of

*Read before the Roanoke Academy of Medicine, December 2, 1940.

these cases but the lesions varied in degree of severity and were accompanied in some cases by lesions of the prostate, seminal vesicles or the adjacent urethra or by a combination of lesions of all.

Briefly reviewing the anatomical features of the prostatic urethra: it extends from the vesicle orifice to the external vesicle sphincter and is surrounded throughout by the prostate gland, the multiple ducts of which open into it. The urethral crest, or verumontanum, is simply an elevation of the urethral mucosa produced by the entering ejaculatory ducts and sinus pocularis or utricle. These give to it structural entity. From a clinical standpoint the verumontanum should be considered as being composed of three parts, the urethral mucosa covering it, the glandular sinus pocularis which forms its main bulk, and the right and left ejaculatory ducts passing through it. The sinus pocularis has been shown to be the common duct of a small gland, the utricle.

The function of the verumontanum is uncertain. The close embryologic and anatomic relationship of this small elevation to both the urinary (urethra) and genital tracts (ejaculatory ducts) gives rise to a complexity of clinical manifestations with disease or abnormality. Some of these disturbances are primary, but the majority are secondary to some abnormality and disease elsewhere. The main clinical effect on the urinary tract is some disturbance of micturition, and on the genital tract, of the sexual function. Combined disturbance is the rule, so that no abnormality or disease stands out as a distinct entity.

The etiology in these cases is often obscure. About 20 per cent admitted a previous gonorrheal infection six months to twenty-six years before applying for treatment for their present condition. One patient dated his trouble following catheterization after operation for appendicitis. Two patients had a definite endocrine imbalance, being extremely obese and giving low basal metabolic tests. One patient admitted excessive masturbation. The youngest patient of this group was nineteen years of age and the oldest fifty-seven. The majority were from twenty to thirty-nine years of age. Two-thirds of the patients were married.

Verumontanitis does not particularize inflammation of the urethral surface, the utricle, or the ejaculatory ducts. Through the urethroscope the lesions observed on the verumontanum are varied in character. There may be extreme congestion and swelling, the part appearing a brilliant red and bleeding on the slightest touch. The sinus pocularis and the ejaculatory ducts may be inconspicuous because of the intense edema, and, again, may be most prominent, their openings gapping widely. In some cases the veru is distinctly granular and varies in shape. Polyps and cystic changes have been reported but were not seen in this series. The urethral floor posterior to the veru may be eroded or granular, highly inflamed and bleed easily on contact with the urethroscope.

In four of the twenty-nine cases a definite prostatitis accompanied the lesion in the prostatic urethra. In each of these patients there was considerable pus in the prostatic secretion. In nine patients the prostate was described as congested. In these cases no pus was found in the expressed secretion but per rectum the gland had a full boggy feel to the examining finger, with various degrees of tenderness. In two cases the urethra, both anteriorly and posteriorly, was definitely congested. There was a median bar present at the vesicle neck in two cases. In one patient the upper end of the epididymis was indurated and tender. One patient had an undescended testicle. In all cases, with one exception, the urine was clear.

As has been stated, symptoms may be either urinary, or sexual, or both urinary and sexual symptoms may appear in the same patient. Symptoms may be definite or vague. Frequency of urination was the most common symptom. In four cases the frequency was nocturnal, in six diurnal, and in three occurred both day and night. One patient complained that before he could go to sleep he had to get out of bed to void once or twice each night and was then bothered no more. In one case frequency was confined to the morning hours and the patient had no trouble during the afternoon and night. Urgency accompanied frequency in three cases, and dribbling following urination was present in four. Low back pain was complained of by six patients. Two patients had discomfort at the neck of the bladder; two complained of suprapubic pain. One patient stated that he had a feeling of pressure of the neck of the bladder, which was relieved on voiding; one that he had an uneasy feeling about the prostate and rectum. One patient complained of pain and soreness in the rectum. Itching in the urethra at the penoscrotal junction, along the urethra, or at the end of the penis was the complaint in three cases. One patient de-

scribed a feeling of uneasiness in the urethra and another a pain and soreness at the penoscrotal junction. Aching in the penis, pain in the urethra following intercourse, the complaint that the head of his penis feels cold, and moisture at the meatus were among the other symptoms presented.

In a third of the cases there was some complaint of sexual dysfunction. Weak or incomplete erections, premature ejaculations, blood tinged semen, loss of sensation during intercourse, lack of desire, and nocturnal emissions were the symptoms presented in the order named.

All of these cases show a certain degree of neurosis, but in none was this marked.

Treatment of the verumontanum and posterior urethra, while in principle the same, differs somewhat in detail depending upon conditions encountered. In those cases in which the symptoms are strictly urinary and without an underlying prostatitis and vesiculitis, instillations of silver nitrate solution through a Keyes-Ultzman syringe, or direct application of silver nitrate to the verumontanum through the endoscope is indicated. The strength of the silver nitrate solution to be used is judged by the tenderness and sensitivity of the parts. In the highly sensitive cases weak solutions should be instilled at first and the strength gradually increased at subsequent instillations. These instillations are given at five-day intervals. As tenderness decreases the gradual dilatation of the posterior urethra with sounds is valuable. This treatment has for its purpose the relief of congestion and shrinkage of the verumontanum with absorption of inflammatory products.

In those cases in which the prostate is involved, massage is indicated.

The above local treatment is the same in those cases in which sexual symptoms predominate or in which sexual and urinary symptoms occur in the same patient. The history is important in these cases and any abnormal sexual practices are to be discontinued. During the period of treatment abstinence from intercourse or attempted intercourse in cases of impotence and avoidance of any form of sexual excitement must be insisted upon. Administration of bromides to these patients helps to this end.

Experience with the administration of testicular hormone has not been sufficient to draw any conclusions as to its value in these cases. Those cases in which there is evidence of endocrine dysfunction (thyroid and pituitary) should have appropriate treatment as well as any systemic condition which may be present.

In our search for pus and blood in the urine the prostatic urethra with its various lesions and affections may be overlooked or neglected. While these affections may seem minor in a way, they are of major importance to those affected. The correlation of vague complaints with physical or functional disturbances of the prostatic urethra frequently requires more art than science. Important symptoms are many times withheld by the patient and minor ones emphasized. Often, too, the problem is elusive because there are few physical findings. There may be no pus, no blood, no tumor or lesion gross enough to see unless suspected and sought. Only a careful history and examination will keep these patients from being relegated to that group termed neurotics.

Medical Arts Building.

THE USE OF SULFAPYRIDINE AND SULFATHIAZOLE IN GENERAL PRACTICE.*

WILLIAM B. McILWAINE, M.D.,
Petersburg, Virginia.

Probably the most interesting and stimulating thing that occurs in medicine, from the point of view of the thousands of physicians in the active daily practice of our profession, is the discovery of some new therapeutic agent that adds a useful, serviceable and effective weapon to our armamentarium. After all, we are on the battle line in the fight for life and health against disease. Ours is the privilege and great pleasure to lead the forces of medicine in the constant daily strife, to share intimately its successes and to feel poignantly its failures.

Think for a moment of the brave but futile fight against malarial fever and the joy of our ancestors in medicine at the knowledge of quinine as a curative agent.

Think of those great pioneers of the last century

*Read before the Fourth District and Southside Virginia Medical Society, December 27, 1940.

who sat by the bedside of many a child dying with the definite diagnosis of diphtheria, having no weapon to use against the awful scourge. No doubt they felt as helpless as a soldier armed only with a rifle, opposed by modern tanks and machine guns. Picture their joy on seeing the administration of anti-toxin save patient after patient who would have died before its advent.

Think of the hopelessness of every one in this room when confronted by the diagnosis of diabetes, especially in children. Hopelessly and helplessly we watched them wither away and die as we sat silently by, praying for something to help us help them.

And reflect for a moment on pellagra, on scurvy, on cretinism and on many other conditions in which we felt so hopelessly futile and inadequate, which now we face with confidence. Why? Because we have weapons with which to fight back, we are not unprepared; we are armed mentally, as was the doctor of old, and we are also armed with weapons of offense—not simply palliative, puny weapons of defense.

And now think of one of the greatest enemies the medical profession has to face, pneumonia. The mere thought of the diagnosis threw the patient, the family and the doctor into a mild panic. Why? Because pneumonia was a disease that killed! No foe more fierce, more relentless, no "blitz-kreig" more dreaded, and rightly so, for we had no offensive weapon to throw against it. Our anti-aircraft barrage of rest, air and symptomatic treatment failed so often! While they served well at times, they were no match for an enemy of such strength and ferocity.

Can we hold the patient until Nature and the anti-bodies, successful at times, but oh, so slowly, overcome the toxins being elaborated so rapidly? Anxious days, anxious nights, success or failure out of our hands, and no weapon or attack! We had to say: "I am sorry, mother, we know nothing to give that will cure the child; we will just have to wait." "But doctor, can't you *do something?* If you could do *something!*" And our reply had to be: "I am sorry, but we will just have to wait."

Five days, seven days, nine days, wait, hope, another day, another night, the crisis! It is out of our hands; Nature must help us with resistance against toxemia; then wait, hope, wait.

But now, thank God, in 1940 and 1941 the story has changed!

I saw a week-old infant—pneumonia in both bases, temperature 104, cyanosed, gasping for breath. In 1938, wait, but don't hope, for I am afraid you won't have many hours to do either, but in 1940—hope—vigorous attack. "I have something I can use now, mother." Sulfapyridine, a new drug, has proven very successful in pneumonia. The second day after its use the infant very definitely improves—blue, of course, and the lungs are still full, but there is little temperature, indicating toxemia is combated, while the infant begins to take nourishment, and by the fourth day our little patient is practically out of danger. Dramatic! Yes, but does anything in our beloved profession give us a more thrilling experience than a dramatic recovery? The main reason for rejoicing, however, is that we have an offensive weapon, a remedy to kill the killer. How does it work? Let the scientists and the laboratory workers worry about that! We doctors, we soldiers in the trenches do not now have to wait; we can attack, and as all good soldiers we love the attack.

A two-weeks-old infant with whooping cough and pneumonia in the right base did not prove hopeless in 1940. With the use of sulfapyridine the consolidation was completely cured in one week, and the infant, though still having whooping cough, was free from pneumonia. Sulfapyridine being stopped, the patient was brought back in less than a week with pneumonia in the left base—infant definitely ill. Sulfapyridine was given again, and in a week's time the pneumonia was under control.

These two cases are not unusual or isolated. All over the country there are hundreds of such cases—in old and young, in rich and poor, in the strong and the weak. The medical literature is being flooded with such reports.

And now I am starting in 1941 to use sulfathiazole and sulfapyridine prophylactically. And why not? It has not been proven to work that way! Not scientific, you say! Remember we are front line soldiers; when we see the enemy we do not have to wait for orders from headquarters through a long line of red tape. We must go for him, without waiting for the attack!

Again, it seems to me, that is common sense medicine.

What do we fear in grippe or a bad cold? Pneumonia. What do we fear in whooping cough and other contagious diseases, or post-operative? Pneumonia. If pneumonia develops, we have a remedy

of proven value. Why wait? Can you tell when pneumonia is going to develop? If it does develop, you would use sulfathiazole or sulfapyridine with confidence. Then, why not get the jump on those tough, little bacteria? Kill them off before they get a foothold. Why wait for the attack? Bomb their channel ports! Wipe out their bases of supply! Prevent their starting out into the blood stream; meet force with force!

The scientist, the laboratory worker, the investigator, has armed us with something we can use. It is our duty to use it.

And if one wants to be legalistic, we have a precedent. The ear, eyes, nose and throat men have been more active and aggressive than we. In abscessed ear they have used sulfanilamide to prevent mastoid infection, and it has done so well they are complaining that they do not have to pay as much income tax as they would if they had a few dozen mastoids to operate on each winter.

I am not quoting any authorities to back me up, as there are not yet many to quote. This is my opinion and I take the blame for anything radical or unscientific that is being said. I can, however, quote analogy after analogy, as the prophylactic use of quinine, the prophylactic use of anti-toxin, the prophylactic use of orange juice—all of these cure disease after it arises and yet are also used to prevent the diseases they cure.

All I ask is that we, as practicing physicians, use what the scientists have given us, and, I may be wrong, but I believe together we can wipe pneumonia off the map.

434 West Washington Street.

IN DEFENSE OF A BAD TEMPER.*

J. SHELTON HORSLEY, M.D.,
Richmond, Virginia.

Among undesirable characteristics a bad temper often assumes a high rank. In defending a bad temper, however, it is not entirely *argumentum ad hominem,* though it may be partly this. Unlike a vicious or a violent temper, a bad temper probably might be controlled. Practically no vices or virtues are consistently always bad or always good. Human character, like a diet, should be made up of well-balanced elements. Too much salt, meat or sugar may be just as injurious as a deficiency of these things, and a disposition in which there is never any trace of occasional fractiousness would doubtless be uninteresting and boring.

The effects of the suppression of emotions and desires have been described by Freud, though his views do not seem to have the complete endorsement of many of the scientific psychologists. To give way on every occasion to the emotions is, of course, unwise; but to suppress them entirely may also be harmful.

The proper control of emotions is one of the chief factors in building character, but this does not necessarily imply that emotions should always be suppressed. Instances of a disturbance of emotion commonly called bad temper or irascibility which was not completely suppressed, and which terminated in commendable results, are not infrequent. Christ, an exemplar of meekness and of love, indignantly drove out the money-changers from the Temple. There have been many persons whose rearing was not entirely happy, and who have been subjected to the bad temper of a stepmother or of parents, relatives or associates, and to whom these disagreeable episodes proved a stimulus for greater mental activity and endeavors than would have occurred if they had been placidly reared. Kipling is an example of this.

Bad temper is difficult to define, but we know it when we see it. It may approach, on the one hand, uncontrollable passion and, on the other hand, it may be so mild as to be a scarcely recognizable emotion. Definitions of the abstract are often unconvincing. No one has adequately defined truth. What is termed virtuous under some conditions may be deemed reprehensible and illegal under others. Murder is usually considered a crime, yet in self-defense or for the protection of others it may be justifiable or even commendable. And what shall we say of legal executions, or of the military hero who is often

*Read before a Club composed largely of professors and teachers.

glorified in proportion to the number of human lives he has taken?

Cannon, the eminent physiologist of Harvard, has shown how closely the emotions are associated with the secretions of the endocrine glands. The effects of impulses conveyed by the sympathetic nerves from emotions are continued through the endocrine system. Following this action of the sympathetic nerves the adrenal glands discharge a secretion which, among other things, releases from the liver glycogen, a reserve form of carbohydrate. If this is succeeded by marked physical or mental activity the excess carbohydrate in the blood may be burned up; but if not, it is often excreted through the kidneys, and sugar and even albumin may appear in the urine. Thus a bad temper can furnish the necessary additional fuel for unusual physical or mental effort.

It is well known that when anyone is overworked or tired he tends to be irritable. This is doubtless a defense mechanism. If, for instance, at the end of a trying day some unexpected task turns up or some undesired visitor or agent presents himself, one often becomes fractious. A tired or exhausted person should be let alone under such circumstances, because of the liability to the display of bad temper. If he were fresh and rested he might be more genial and cooperative. To impose an extra task or a disagreeable person or problem on one who is already tired means greater exhaustion and a still heavier drain upon his mental and physical resources. The exhibition of a bad temper under these circumstances is distinctly protective.

The justification of a bad temper may not be overwhelmingly proved, but there are many suggestive incidents which show that it is not always reprehensible. The bad temperish characteristics of Dr. Samuel Johnson, the lexicographer, and of Carlyle, are notorious, and as a result many a quip from them has been recorded. Johnson was once criticized by a lady for his erroneous definition of the pastern joint of a horse. She asked him why he committed such an error, and he peevishly replied, "Just ignorance, Madam, pure ignorance". Definitions are tricky things, and doubtless require a careful selection of words and an even temperament. Johnson must have been irritated, a not unusual condition for him, when he defined network as "something reticulated and decussated with interstices between its intersections". Surely no one in a placid mood could have inflicted such a thing upon us!

More recent incidents of the intellectual stimulus of a bad temper are furnished in "Life With Father" by Clarence Day, and in "The Vanishing Virginian" by Rebecca Yancey Williams. One of the most amusing situations in "Life With Father" was when something would go wrong and Father would retire to his room and peremptorily tell God what should be done.

In "The Vanishing Virginian", Captain Yancey would explode on the slightest provocation. On one occasion when his laundry was not delivered this characteristic was brought out. The laundry had been done at his farm in Bedford and was sent to his home in Lynchburg by express collect, but because neither Captain Yancey nor his wife was at home at the moment and the new employee was unacquainted with them the laundry was not left as it could not be paid for. When Captain Yancey returned and found his laundry had not been delivered he telephoned the express company and protested with many damns for the company and all its works and particularly for the "haggis-headed young idiot" who had such damn little sense as not to leave the package. In a loud voice he committed the whole express company and its entire personnel to everlasting and eternal damnation. His wife was very much perturbed. She called up the express company and apologized to the agent, who simply laughed and said he knew Captain Bob and it was all right. She then tried to explain to her new negro cook who could not help hearing the Captain, but the cook said, "Lawd, Miss Rose, I don't mind. I likes to work for quality folks; I knowed Mr. Yancey was a 'ristocrat de minute I heerd him cuss so pretty."

There are numerous case histories which illustrate the incidence of a bad temper and its defense reaction. Those of Carlyle, Samuel Johnson, Mr. Day and Captain Bob Yancey have been mentioned. In the surgical profession they may also be found. Dr. William H. Carmalt was a professor of surgery at Yale for many years. When he was about seventy he retired, but he lived to a more advanced age. His early training was in ophthalmology in Vienna, where he became much interested in the history of medicine, particularly as it affected surgery. He was fond of tracing back to the laws and customs of the Arabs and Moors. Another characteristic was

that he was impatient of questions regarding the source of his information. This would have cramped his style and probably have involved considerable labor and tedious references concerning things that he believed he knew full well. So a favorite expression of his when he was asked for his authority for a statement was that "It is none of your damn business". In spite of his occasional peevishness, however, he was very popular with the students and the profession.

A testimonial dinner was given him some years after he had retired. The toastmaster was Dr. David Lyman, of Connecticut, an alumnus of the University of Virginia. He addressed Dr. Carmalt (who was known as Uncle William) in the following verse:

"You are old, Uncle William, and some people say
That temper increases with age,
But we find you as mild as a soft summer day.
Pray, how do you conquer your rage?
The secret of that, Uncle William replied,
Was taught by the Arabs and Moors;
But where I obtained it, or how it's applied,
Isn't any damn business of yours!"

So, if we had to create an ideal man, we would follow this formula: As the primary ingredients take large quantities of physical and moral courage, honesty and truthfulness; add a considerable amount of intelligence, loyalty, physical comeliness and a rather liberal measure of gentleness and kindness, with some tactfulness. To prevent this combination, however, from being somewhat flat and insipid, it should be seasoned with a dash of bad temper.

Correspondence

Correction as to Presidents of American Psychiatric Association.

TO THE EDITOR:

The VIRGINIA MEDICAL MONTHLY is mistaken in its statement* that no previous president of the almost-a-century-old American Psychiatric Association was a Virginian.

In 1901-'02, Dr. Robert J. Preston (Bob's father) was president of the Association; in 1909-'10, Dr. W. F. Drewry was the Association's president. Dr. Preston was superintendent of the Southwestern State Hospital, at Marion, and Dr. Drewry, as you know, was superintendent of the Central State Hospital. In 1887-'88, Dr. Eugene Grissom was president of the Association. He was then superintendent of the State Hospital at Raleigh. I recall no other resident of North Carolina who has been president. Yet I must not forget that in 1906-'07 Dr. Charles G. Hill, of Baltimore, was president of the American Psychiatric Association. He was for many years the medical head of Mount Hope Retreat in Baltimore, a Catholic institution, though he was an Episcopalian. When the Association was in session in Richmond in 1925, he told me that he was born not many miles north of Raleigh, in Louisburg. He told me, too, bravely and almost cheerfully, that he would not be present at another meeting. Within a few months he was dead—a lovely old man he was, too. It may be that some other president was North Carolina-born, but I doubt it.

It is a coincidence that Fred Wharton Rankin, president-elect of the American Medical Association, and I were in high school together in Statesville, North Carolina. Fred is younger than I by ten or twelve years, perhaps, but he came into high school, a little fellow, just before I left it. We were both born in Iredell County, fifteen or twenty miles apart, in the country. He married a daughter of one of the Mayos. I seldom see Rankin, but I have the feeling that he has no objection to so-called socialized medicine. I am anxious to see what his attitude will be. He has lived at Lexington, Kentucky, for several years.

Faithfully,

J. K. HALL.

Richmond, Virginia,
June 9, 1941.

EDITOR'S NOTE.—Dr. Hall was recently elected president of the American Psychiatric Association for 1941-2.

*Appearing in May, 1941, issue.

Military and Naval Section

The following have been added to the list of

Examining Physicians on Local Boards

Dr. J. D. Woodley, Great Bridge.
Dr. W. H. Saunders, Roanoke.
Dr. George S. Hurt, Roanoke.
Dr. H. M. Richardson, Midlothian.
Dr. W. C. Williams, Hillsville.
Dr. Wm. H. Hughes (Col.), Richmond.
Dr. Henry Lee, Roanoke.
Dr. Elam C. Toone, Jr., Richmond.
Dr. Robley D. Bates, Jr., Richmond.
Dr. Max Schoenbaum, Richmond.
Dr. Paul W. Bowden, Charlotte C. H.
Dr. W. P. Yancey (Col.), Roanoke.
Dr. George A. Moore (Col.), Roanoke.
Dr. M. H. Law (Col.), Roanoke.
Dr. Sidney Gray Page, Jr., Richmond.
Dr. I. M. Nuckols, Mount Sidney.
Dr. J. Hansford Thomas, Jr., Greenville.
Dr. A. M. Burfoot, Fentress.
Dr. W. M. Otey, Roanoke.
Dr. Vernon Harris (Col.), Richmond.
Dr. J. E. Hamner, Petersburg.
Dr. C. L. Mullen (Col.), Richmond.
Dr. E. B. Kilby, Toano.
Dr. A. M. Sneed, Toano.
Dr. Joseph Coates, Galax.
Dr. M. E. McRae, Chatham.
Dr. B. F. Eckles, Galax.
Dr. W. P. Davis, Galax.
Dr. Chas. E. Llewellyn, Richmond.
Dr. U. H. Johnson, Port Richmond.
Dr. W. A. Franklin, West Point.
Dr. C. C. Cooke (Col.), Richmond.
Dr. H. L. Townsend, Marshall.
Dr. H. C. Grant, Remington.
Dr. V. L. McCullers, Remington.
Dr. Wm. B. Greene (Col.), Petersburg.
Dr. H. W. Williams (Col.), Petersburg.
Dr. Kenneth Cooper, Lynchburg.
Dr. J. Newton Dunn, Blackstone.
Dr. E. Forrest Neal, Altavista.
Dr. C. F. Ross, Criglersville.
Dr. R. B. Newman, Hampton.
Dr. J. A. Jackson (Col.), Norfolk.
Dr. E. D. Burke (Col.), Norfolk.
Dr. John F. McGavock, Charlottesville.
Dr. G. Hamilton Francis (Col.), Norfolk.
Dr. J. Q. A. Webb (Col.), Norfolk.
Dr. J. T. Givens (Col.), Norfolk.
Dr. W. P. Collette (Col.), Norfolk.
Dr. C. R. S. Collins (Col.), Norfolk.
Dr. A. C. Fentress (Col.), Norfolk.
Dr. Frank R. Trigg (Col.), Norfolk.
Dr. J. D. Jackson (Col.), Norfolk.
Dr. F. W. James (Col.), Norfolk.
Dr. E. W. Murray (Col.), Norfolk.
Dr. W. H. Malan, Dublin.
Dr. A. M. Groseclose, Roanoke.
Dr. H. B. Stone, Jr., Roanoke.
Dr. M. H. Williams, Roanoke.
Dr. G. G. Rhudy, Roanoke.
Dr. J. L. Cabaniss, Roanoke.
Dr. D. C. Keister, Osaka.
Dr. Jerome Natt, Roanoke.
Dr. N. A. Beeton, Vinton.
Dr. T. C. Sutherland, Haysi.
Dr. J. W. Johnson, Union Level.
Dr. W. W. Pierce (Col.), Chase City.
Dr. T. N. Davis, Lynchburg.
Dr. Harvey C. Brownley, Lynchburg.
Dr. John O. McNeel, University.
Dr. Alfred Abramson, Alexandria.
Dr. O. D. Durant, Alexandria.
Dr. C. E. Jenkins, Alexandria.
Dr. A. C. Lindo, Alexandria.
Dr. Colin MacRae, Alexandria.
Dr. J. A. Sims, Alexandria.
Dr. W. C. West, Alexandria.
Dr. C. F. West, Alexandria.
Dr. L. M. Lisle, Alexandria.
Dr. H. E. Cross, Alexandria.
Dr. C. D. Barksdale, Sutherlin.
Dr. C. B. White, Halifax.
Dr. Louis P. Bailey, Nathalie.

Medical Reserve Officers

In addition to those previously reported through the MONTHLY, the following doctors have been ordered to extended active duty with the regular army by the commanding general of the Third Corps Area:

Lt. Col. H. E. Whaley, Victoria—Camp Lee.
Capt. Raymond K. Butler, Madison—Camp Davis, N. C.
Capt. Lawrence Paul Jones, Emporia—Camp Pendleton.
Capt. D. H. Rosenfeld, Richmond—Camp Lee.
Lt. William Otis Bailey, Jr., Leesburg—Ft. George G. Meade, Md.
Lt. Manfred Call, III, Richmond—Ft. George G. Meade, Md.
Lt. John Letcher Chestnut, Mountain Grove—Ft. George G. Meade, Md.
Lt. David I. Farnsworth, Richmond—Ft. George G. Meade, Md.
Lt. Joseph E. Gladstone, Exmore—Camp Lee.
Lt. Michael I. Hanna, Covington—Ft. George G. Meade, Md.
Lt. Frederick G. McConnell, Gate City—Camp Davis, N. C.
Lt. Brooke B. Mallory, Lexington—Fort Belvoir.

Lt. Edward Albert Mitchell, Clinchco—Ft. George G. Meade, Md.

Lt. Nowell Darden Nelms, Mathews—Ft. George G. Meade, Md.

Lt. Bernard Donald Packer, Richmond—Fort Belvoir.

Lt. Wilmer Howard Paine, Charlottesville—Fort Bragg, N. C.

Lt. James McGuire Peery, North Tazewell—Ft. George G. Meade, Md.

Lt. William Asa Seawell, Raven—Ft. George G. Meade, Md.

Lt. Lewis Frank Somers, Lynchburg—Ft. George G. Meade, Md.

Lt. Vernon A. Stehman, Arlington—Ft. George G. Meade, Md.

Lt. W. Thomas Varner, Richmond—Ft. George G. Meade, Md.

Lt. John Tabb Walke, Norfolk—Ft. George G. Meade, Md.

Lt. Robert Barnes Ware, Lynchburg—Ft. George G. Meade, Md.

Lt. O. M. Weaver, Colony—Ft. George G. Meade, Md.

Major Gilbert O. Crank, Lawton, W. Va., class '16, Medical College of Virginia—Army Headquarters, Camp Davis, N. C.

Capt. Edwin J. Palmer, Palmer, Mass., class of '34, Medical College of Virginia—Fort Devens, Mass., but to be attached to 18th Medical Regiment, Camp Forrest, Tenn.

Lt. Leo L. Tylec, Union City, Conn., class of '35, Medical College of Virginia—Station Hospital, Fort Devens, Mass.

Transfer

Capt. Guy C. Richardson, Bristol, has been transferred from Station Hospital, Ft. McClellan, Ala., to Randolph Field, Texas.

Promotions

Capt. Grant R. Elliott, Orange, has been promoted to Major, effective June 3, his assignment being Surgeon of the 17th Bombardment Wing, Savannah Air Base, Savannah, Ga.

Lt. Hugh B. Brown, Jr., Draper, who was first sent to Ft. George G. Meade with the National Guard, has been promoted to Captain.

Naval Medical Reserve

Lt. Charles H. Patterson, M.C.-V(s) U.S.N.R., Lynchburg—Dermatologist to the U. S. Naval Hospital, Philadelphia.

Miscellaneous

Remarks on the Occasion of the Unveiling of the Portrait of Dr. George Woodford Brown.*

One hundred and seventy-two years ago the first court of directors of the Eastern Lunatic Asylum took office. One hundred and sixty-eight years ago Dr. John deSequira became its first visiting physician. It was not until July 1, 1841, that an Act of the Legislature establishing the office of medical superintendent became effective and Dr. John M. Galt became its first superintendent, simultaneously with Dr. Francis T. Stribling, who assumed a similar position at the Asylum in Staunton. These two men, with eleven other hospital superintendents from various parts of the United States, in 1844 organized what is now the American Psychiatric Association which is today the oldest national medical association in America. As pregnant as is the City of Williamsburg with history relating to the conception and birth of the nation, it is difficult for me to think of Williamsburg without the hospital, or to give the history of the latter less importance than that of the former. For here it was that a great charity, state care of the mentally ill, first became a reality and the example was set which led to its adoption eventually by every state in the Union. From the standpoint of the psychiatrist, the history of the Eastern State Hospital is almost sacred history.

To be the successor to some of the illustrious superintendents who have guided the destinies of this institution through the years is an honor. Dr. Galt, probably the most distinguished of the line, was superintendent for a little less than twenty-one years. His ten successors; Wagner, Henley, Garrett, Petticolas, Brower, Black, Wise, Moncure, Foster, and Brunk, served a total of forty-nine years, or an average of a little less than five years each.

Dr. Brown came to the institution March 14, 1911, something over thirty years ago. His period of service, therefore, far exceeds that of any one of his predecessors. This in itself is a distinction. The year 1941 is appropriate for this presentation and celebration, as it marks the one hundredth anniversary of the institution under a medical superintendency, nearly a third of which period Dr. Brown has served.

Other than to mention the plans for the development of the plant at Dunbar which, it is contemplated, will be the last word in hospital construction, I shall not attempt to go into any details regarding the growth of the institution and the improvements which have been made during Dr. Brown's incumbency. Rather would I speak of my personal friendship and affection and the admiration

*At Eastern State Hospital, Williamsburg, Va., May 16, 1941.

which so many of us have for him. In the more than thirty years of my acquaintance with him, I have seen him under varied conditions and circumstances —in adversity and otherwise. Through it all there stands out the picture of a wise and skillful physician, a man gentlemanly and inately kind, one whose integrity has never been questioned, honest with himself and others, unmoved by criticism, almost painfully independent, and with it all modest to a fault.

Because of his modesty, no doubt many of his splendid accomplishments are unrecorded for the enlightenment of future readers of hospital history. But for his independence and magnificent disregard for public opinion, his pathway would doubtless often have been smoother.

Some of us might imagine that if it were possible to make him over, he might be improved. I wonder! Of this I am sure, the product of our creation, if attempted, would not be Dr. Brown; and it is Dr. Brown as he *is* that his friends honor today.

Dr. Brown, it is not because you are connected with the most historical institution for the mentally ill in America; it is not because for nearly a third of a century you have been its Guiding Star; it is not because you succeeded distinguished hospital superintendents; nor is it even because you are a wise physician and a kindly gentleman that your friends seek to honor you today. It is, I think, because of something which is infinitely more important and lasting. It is because of the love which your friends have for you that this occasion has arisen. It may be that your faults as well as your virtues are important in the make-up of that personality which endears you to your friends. I can think of no sweeter motive for their action today than love—and love is no idle word. I give you no less authority than that of the sometimes impetuous but always the learned scholar, the apostle to the Gentiles, who has recorded in Holy Writ his estimate of love as a motivating and enduring thing. He tells us that prophesies shall fail, tongues shall cease, and knowledge shall vanish away; but love never faileth. "And now abideth faith, hope, love, these three; but the greatest of these is love."

Dr. Brown, your friends in having the artist capture and transmit to canvas this splendid symbol or likeness of you have done a most fitting thing and paid you a most merited tribute. Those for whom I am privileged to speak and I salute you and we wish for you many years of health and happiness.

H. C. HENRY, M. D.,
Director of State Hospitals.

A Proposed Course in Audiometry.

The terms used herein are those used by Mr. Ralph Crutchett in his proposed audiometry law, published in the *Volta Review* for June, 1941, namely:

audiometry: The measurement of the powers or range of human hearing and the prescribing, fitting, or selling of hearing aids

audiometrist: One who is skilled in and practices audiometry.

Neither of the above words is defined in Webster's New International Dictionary, but Mr. Crutchett's definitions are logically comparable to those given for the words *optometry* and *optometrist.*

Mr. Crutchett, in proposing an audiometry law, gave due recognition to the fact that at present no centers exist where training in audiometry is offered; therefore his law provides only for an examination for prospective audiometrists, the contents of such examination being left to the discretion of the examining board. It is probable that no initial step could go farther than that at present. It is important, however, that some sort of standard be set for examinations of this kind, and that plans be made for the early establishment of training courses in audiometry.

Discussion of this subject in the two offices at the Volta Bureau and among friends in the otological profession and hearing aid business has brought out some suggestions as to what a course in audiometry should include. These are offered here, in the same spirit in which Mr. Crutchett offered his proposed law—not as a finished product, but as a basis for further discussion from which it is hoped that action will arise.

SUGGESTIONS FOR COURSE

The course should be not less than two school years in length.

The subjects should include:

Physics, two years, one of which should be devoted to the physics of sound.

Fundamentals of communication engineering.

Fundamentals of vacuum tube amplification.

Theory and practice in the technique of audiometer testing and the making of audiograms.

Psychology—especially of the handicapped; ethics; salesmanship.

Mechanism of hearing.

Training of residual hearing.

Lip reading—history, psychological value, fundamentals. Required reading from publications of the Volta Bureau and of the American Society for the Hard of Hearing.

Mechanism of speech.

Phonetics—formation of the elements of English speech.

History and current literature dealing with development of audiometers and hearing aids. Required reading from *Volta Review,* A.S.H.H. Conference Proceedings, Laryngoscope, Archives of Otolarygology, Annals of Otology, Journal of the Acoustical Society of America, etc.—(*Volta Review* of July, 1941).

Mental Hygiene Activities

On the 14th of May there was held in Norfolk a meeting of the Mental Hygiene Society of Virginia under the leadership of its president, Dr. David C. Wilson, and sponsored by the Junior League of Norflok, whose chairman, Mrs. Mackenzie Jenkins, was chiefly responsible for the local arrangements. The general topic was "Mental Hygiene and the Emergency" and the afternoon session was devoted to Parole, Recreation and Vocational Training. The night meeting was along somewhat more technical lines and the discussants were Drs. Henry, Gayle, Williams and Pettis. Both sessions were largely attended and there was much interest shown as evidenced by the questions asked.

I was requested to write a short article on Mental Hygiene Activities in Virginia but as I write I am tempted to say more about the Mental Hygiene needs of our state and especially of my own community. What is Mental Hygiene and by what means can some of its clinical applications be realized? Great strides have been made in medicine in the prevention of disease but prior to the past few years little had been accomplished in the prevention of mental disorders. So Mental Hygiene is concerned with helping the individual to keep emotionally well, to help him in his adaptation to life so that he may lead a useful and happy existence. It must be important or the U. S. Public Health Service would not have a division of Mental Hygiene. It is not so much concerned with the "end of the road" Psychotic who has already spent years of his life in an Institution for Mental Disease but it is greatly concerned in preventing the development of that Psychosis.

What can be done about it? A few years ago syphilis was a word not to be uttered in polite society but only in medical groups; by educating the public it is now a good word in any group. And so the public as well as the physician will have to be educated in the field of Mental Hygiene. This is the chief reason this year for the Mental Hygiene meetings which have been held in several of the cities of the state. The best time to practice Mental Hygiene is in early childhood and the best investment that a state or community can make is to allocate funds for an adequately staffed Child's Guidance and Mental Hygiene Clinic where trained workers will be able to study behavior problems in children and give Psychiatric service to the many hundreds of adults who are otherwise floundering and groping around in the dark not knowing which way to turn. Such clinics will not be one hundred per cent nor will they ever be ideal but it is estimated that if seven cases a year can be successfully handled so that their admission to a state hospital can be prevented, more will be saved in dollars than the cost of maintaining the clinic. In the words of Dr. Vogel of the Public Health Service, the question is not, "Can we afford mental hygiene?" but, "Can we afford to be without mental hygiene?"

FRANK H. REDWOOD.

Public Health Statistics

I. C. RIGGIN, M.D.,
State Health Commissioner of Virginia.

The report of the Bureau of Communicable Diseases of the State Department of Health for May, 1941, compared with the same month in 1940 and for the period of January through May, 1941, compared with the same period in 1940 follows:

	May 1941	May 1940	Jan.-May 1941	Jan.-May 1940
Typhoid and Paratyphoid Fever	17	13	59	52
Diarrhea and Dysentery	50	62	276	351
Measles	6,585	962	29,778	2,128

Scarlet Fever	104	148	836	901
Diphtheria	35	29	185	263
Poliomyelitis	1	0	11	6
Meningitis	13	14	58	38
Undulant Fever	3	3	6	7
Rocky Mountain Spotted Fever	3	0	7	3
Tularemia	3	1	18	25

THE X-RAY IN TUBERCULOSIS SURVEYS

For some time workers in the field of tuberculosis control have felt the need of a rapid, inexpensive method for x-raying large groups of individuals. For the past few years paper films have been used for this purpose and have proven satisfactory. Five or six hundred patients may be examined daily by this method at a cost of seventy-five cents each. This type of examination has been used extensively in public schools, colleges, industrial plants, and mental hospitals. The rates in these groups vary from less than one-tenth of one per cent in elementary schools, to five per cent or more in hospitals for the insane. In all groups many unsuspected cases of tuberculosis were discovered that had not been previously suspected.

Examination of employees in industrial plants is especially important at the present time for obvious reasons. While it is well known that tuberculosis is no respecter of persons, the toll is heaviest in the underprivileged; in some instances this means our industrial workers.

Ingenious physicists have perfected a method of x-ray examination called fluorography that promises to fulfill all needs for a rapid, inexpensive method of mass survey. This procedure, suggested in 1911 by Caldwell, involves photography in miniature with an ordinary camera of the roentgen ray shadow on a fluoroscopic screen. Developed first on a practical basis in South America by Dr. Abren and perfected in this country and on the continent by numerous manufacturers and investigators, it now takes its place as the outstanding development in the x-ray field. Undoubtedly it is destined to play a large part in locating the unsuspected case of tuberculosis and the insidious industrial disease.

A portable machine using the 35mm roll film is now in use by the State Department of Health. Approximately 500 individuals can be examined daily at a cost which is not expected to exceed twenty-five cents per case. This unit with a total weight of 750 pounds is transported in a light delivery truck from place to place. Unassembled, the heaviest piece weighs but two hundred pounds. A Leica Model F. camera with f 1.5 lens is mounted at the small end of a light-proof truncated cone. At the other end is the fluorescent screen. This screen is especially designed for this type of work and differs from the usual ones by being greenish yellow in color. The patient is placed against the largest end of cone and screen energized. The image produced on the fluoroscope screen is registered on the small film. These, in rolls of 250 exposures, are developed by the usual technique. On the developed film, gross lesions can be identified. However, the films must be enlarged either by magnification or projection for detailed reading. The State Department of Health prefers the projector, as the reduced films are easier to read than the conventional 14-inch by 17-inch since the entire chest field can be visualized at one time.

In mass surveys where little or no clinical information is available, conservatism must be exercised in making final and absolute diagnosis. None of these methods are as accurate as the regulation 14-inch by 17-inch stereoscopic film; all other methods, including history, physical examination and various laboratory procedures, must be fully utilized in making the final diagnosis. Undoubtedly, this method makes x-ray of chests available to a large group of our people who otherwise would not have x-rays made.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. GRIFFIN W. HOLLAND, Eastville.
President-Elect—MRS. E. LATANE FLANAGAN, Richmond.
Recording Secretary—MRS. HAROLD W. POTTER, Hilton Village.
Corresponding Secretary—MRS. J. WALKER JACKSON, Machipongo.
Parliamentarian—MRS. JAMES B. STONE, Richmond.
Treasurer—MRS. REUBEN F. SIMMS, Richmond.
Chairman, Press and Publicity—MRS. HENRY M. SNEAD, Petersburg.

My First A.M.A. Auxiliary Meeting.

To some people the Cleveland meeting of the American Medical Association was just another trip but to me it was my first opportunity to attend the Woman's Auxiliary to the A. M. A. and one of those most thrilling experiences of my life. To be a part of such a convention was a rare privilege, and

to carry Virginia's flag in the Parade of States was an honor of which I am justly proud. Of the thirty-nine states organized, thirty-seven were represented either by the presidents or delegates and the remaining two were represented by visitors from those states.

Thirty-four states sent exhibits and Virginia's was one of the most interesting and attractive. In the two minutes allowed me on the program I was happy indeed to give Mrs. Holland's report which was very fine, but, in the conference on organization, my "face was red" when we had not organized even one auxiliary. Some states are asking the women to become members-at-large to help carry out the plan for the year of "EVERY ELIGIBLE DOCTOR'S WIFE A MEMBER OF THE WOMAN'S AUXILIARY". This is a privilege which is yours by virtue of your husband's accomplishments and I personally would like to see all eligible women enjoy it.

Dr. Van Etten, president of the American Medical Association, in his address to us gave just praise to the achievements of the Auxiliary, and Dr. Frank H. Lahey, in-coming president, said there is much we can do. He says that being only nineteen years old makes us a comparatively new but powerful organization. If we will study the platform of the American Medical Association—Nutrition, First Aid and Public Relations— and help interpret and evaluate their meaning to those we contact in other groups, we will greatly aid our parent organization—the American Medical Association. It was also suggested that we help in every way we can the families of physicians who are moving in and near the army camps.

The Auxiliary in Ohio is only one year old and has 1,600 members. So closely associated are they with their Medical Association, that they worked together—800 strong—for the plans and preparation for the convention.

The social part of the program was all that could be hoped for and more. It helped greatly to recreate us for the many things we were to hear and learn. Since we do what we know, it was important for us to have knowledge linger and thereby give us understanding.

The resolutions and election results will be carried in the *Bulletin of the Woman's Auxiliary of the American Medical Association,* which I recommend to your reading.

Health is the greatest consideration in our nation today. Our doctors are the guardians of this health and we women must do all we can to be helpful guardians of THE guardians.

(MRS. E. LATANÉ) LOUISE W. FLANAGAN,
Virginia Delegate.

The Williamsburg-James City County Auxiliary

Met May the 13th at the home of Mrs. J. R. Tucker in Williamsburg. The Auxiliary was hostess to the wives of the physicians who are stationed at nearby military posts and the attendance was unusually good.

The date for the meetings was changed from the second to the first Tuesdays.

Dr. W. W. Fuller gave a very interesting and educational talk on the "History of Venereal Diseases".

Mrs. Tucker, chairman of the Red Cross division of the Auxiliary, made a report on work being done and asked all members to take some sewing home.

(MRS. C. E.) MARION HOLDERBY,
President.

Truth About Medicine

The following products have been accepted by the Council on Pharmacy and Chemistry since May 1, 1941:

Lederle Laboratories.

Tablets Aminophyllin—Lederle, 0.2 Gm. (3 grains).

Eli Lilly & Company.

Sulfathiazole—Lilly.

Tablets Sulfathiazole—Lilly, 0.25 Gm. (3¼ grains).

Tablets Sulfathiazole—Lilly, 0.5 Gm. (7½ grains).

Upjohn Company.

Typhoid Vaccine—Upjohn, six 2½ cc. vials package.

Tablets Sulfapyridine—Upjohn, 0.5 Gm. (7.7 grains).

Tablets Sulfathiazole—Upjohn, 0.5 Gm. (7.7 grains).

Winthrop Chemical Co., Inc.

Pontocaine Base Eye Ointment.

New and Nonofficial Remedies

The following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Typhoid Paratyphoid Mixed Vaccine (New and Nonofficial Remedies, 1940, p. 466).—Also marketed in packages of six 2½ cc. vials containing in each cubic centimeter 1,000 million killed-typhoid bacilli, 750 million each of killed paratyphoid A and paratyphoid B bacilli. The Upjohn Company, Kalamazoo, Mich.

Solution Liver Extract—Lilly.—A sterile aqueous solution containing the ntirogenous nonprotein fraction G of Cohn *et al.* preserved with 0.5 per cent phenol. The

potency of the preparation is such that its daily parenteral administration has been found to produce the standard reticulocyte response defined for each U.S.P. unit (injectable) present. Solution liver extract—Lilly is proposed for intramuscular injection in the treatment of pernicious anemia. In the average uncomplicated case of pernicious anemia in relapse a satisfactory response may be obtained with an initial dose of 5 to 20 U.S.P. units daily for the first two or three days, after which weekly injections of 7 to 15 U.S.P. units should be continued until the blood picture has returned to normal. For maintenance a minimum of 1 U.S.P. unit (injectable) daily is usually sufficient and may be given as a cumulative dose. The product is supplied in rubber stoppered ampules, 3.5 cc. (containing 2 U.S.P. units per cc.), 10 cc. (containing 2 U.S.P. units per cc.), and 10 cc. (containing 1 U.S.P. unit per cc.). Eli Lilly & Co., Indianapolis. (*J.A.M.A.*, May 31, 1941, p. 2505.)

Book Announcements

Foreign Bodies Left in the Abdomen. The Surgical Problems—Cases, Treatment, Prevention. The Legal Problems—Cases, Decisions, Responsibilities. By HARRY STURGEON CROSSEN, M.D., School of Medicine, Washington University. And DAVID FREDERIC CROSSEN, LL.B., School of Law, Washington University, St. Louis. St. Louis. The C. V. Mosby Company. 1940. Octavo of 762 pages. With 212 illustrations including 4 color plates. Cloth. Price, $10.00.

The medical and legal aspects of foreign bodies that find their way into or are left accidentally in the abdominal cavity and the body orifices are discussed in this book.

In the beginning of the medical preface, H. S. Crossen states, "This work is undertaken to emphasize to surgeons the danger of occurrence of the serious accident of leaving a foreign body in the abdominal cavity, to work out the best plan of treatment for the various types of such cases, to call attention to the difficulties of avoiding such accidents under the many stresses of abdominal work, and to arouse interest in the serious study of the problem of prevention." D. F. Crossen writes, in part, in the legal preface, "The subject of foreign bodies left in the abdomen considered from the legal standpoint, presents two main problems or aspects. One has to do with the present law and rulings in the matter and entails a presentation of the general practice and decisions and also of the special points raised by particular laws in the various states. The other main aspect of the subject has to do with the question of equitable division of responsibility in the complex relations of the operating room and entails a careful and detailed inquiry into the necessary division of responsible work, and hence of responsibility among the various participants in the serious understanding which is titled operation, that justice may be done to all."

Both phases of this subject are covered in detail. The chapters devoted to the legal aspects are, I am afraid, more concise than those written by our surgical colleague. This may have been due to the nature of the respective tasks but the reviewer feels that the subject of sponges in the abdominal cavity could have been covered in less than 245 pages. The author's ingenious method of preventing this accident is described at length.

The chapter on swallowed articles in the abdomen and especially that part devoted to the treatment of this condition is of particular interest, for few surgeons see many cases of this nature. The chapter on deception and malingering is also of more than passing interest. Despite its limited field this book represents an enormous amount of work, the references alone number more than one thousand.

Each case that is cited emphasizes the fact that foreign bodies left in the abdominal cavity hold nothing but grief for patient and surgeon alike. While it is unnecessary to read each page, this book should be on the must list of every surgeon and operating room superintendent.

HARRY J. WARTHEN, M.D.

MacLeod's Physiology in Modern Medicine. Edited by PHILIP BARD, Professor of Physiology, Johns Hopkins University School of Medicine, and Collaborators (see page 300, May 1941, Va. Med. Mo.) Ninth Edition. St. Louis. The C. V. Mosby Company. 1941 Octavo of xxvi-1256 pages. Illustrated. Cloth. Price $10.00.

This new edition of this text is a definite improvement over the previous edition. In spite of the fact that much of the previous amount of biochemistry it contained has been omitted, the book has become a rather weighty tome. It is undoubtedly, in the reviewer's opinion, one of the two best physiology texts for medical students and practitioners.

Since it is always the custom for a reviewer to pick flaws in a reviewed volume, I will not break with tradition, although I often have wondered whether this is done to impress the reader with the reviewer's superior knowledge, or merely to supply constructive criticism to the author so that the next edition may be improved.

I regret that the subject of ion antagonism has been omitted from this edition for biochemists, probably for traditional reasons, usually pay it scant attention. In the discussion of the adrenal cortical hormone, apparently no mention whatsoever is made of the important compound desoxycorticosterone, although this is being widely used clinically. The method of obtaining alveolar CO_2 samples given is no longer used by present-day investigators, since the expiratory sample alone has been proven to give most accurate results. The titer of gonadotropin in the urine during pregnancy (page 1050) is much too low, and the peak is generally assumed to occur in the second or third month rather than the fifth, as stated. Mention should be made of the difference between pituitary gonadotropin and chorionic gonadotropin. Nothing is said of the fact that the placenta secretes progesterone. The reviewer would prefer to see structural formulae of other hormones in addition to that of thyroxin.

Although at the present day it is necessary and highly advisable to have various chapters written by specialists, it would be of great advantage if these chapters were completely rewritten by the editor, in order to maintain the same general style and viewpoint throughout the text.

In spite of these minor criticisms I consider this an excellent text and one well adapted as a reference book for the practitioner to whom physiology is yearly becoming more important.

R. J. MAIN.

Clinical Pellagra. By SEALE HARRIS, M.D., Professor Emeritus of Medicine, University of Alabama. Assisted by SEALE HARRIS, JR., M.D., Formerly Assistant Professor of Medicine, Vanderbilt University. With Foreword by E. V. McCollum, Ph.D., Sc.D., LL.D. St. Louis. The C. V. Mosby Company. 1941. Octavo of 494 pages. Cloth. Price, $7.00.

In this work Dr. Harris was assisted by his son, Dr. Seale Harris, Jr., and the work is in collaboration with Drs. Julian M. Ruffin, David T. Smith, V. P. W. Sydenstricker, Katharine Dodd, William B. Porter, Upshur Higgenbotham, Don C. Sutton, John Ashworth, and William D. Partlow. There is a foreword by E. V. McCollum. Thus this book comes to be a composite representation of ideas on clinical pellagra chiefly by various Southern medical minds.

But the book is more than a composite picture, for Seale Harris himself, in spite of the imposing list of collaborators, has written about two-thirds of the book.

Pellagra is not a new disease. It has been described in Spain and Italy for several hundred years and was studied in France, Egypt, Austria, Mexico, and Central America, and sporadic cases were observed in various countries long before it made its appearance in the Southern United States the early part of this century, where it was first discovered in quantity and described by Dr. George Searcy of Alabama, in 1906. Thank heavens Dr. Harris gives full credit to Dr. Searcy—something that has not been done by many so-called pellagra students! Harris also gives Goldberger full credit for his contribution in pellagra prevention factors.

Harris has been exceedingly unprejudiced and tolerant in his presentation of the various theories of pellagra causation and in this, as in other instances, he has shown not only sagacity but wisdom, for the full story of the etiology of pellagra has never been told although much has been written upon the subject. Partlow's views as expressed in Chapter IX are to this reviewer's mind very impressive, for the reviewer has felt for years that there was an infection factor, probably a virus, which was the Madam X in pellagra etiology.

The chapters of the collaborators are earnest and interesting and blend into the scheme of the book as a whole. The bibliography is extensive and the illustrations and tables are well selected and instructive. Dr. Seale Harris, himself, with his long teaching and clinical career, with his exact knowledge of gastrointestinal and metabolic disorders, and with his facile pen and glowing though orderly mind has told all the story of pellagra that is known to date. Still, he has left the gate ajar for further research. Every practitioner of medicine should have this book on clinical pellagra available, and every physician interested in pellagra, especially those in the Southern United States, should read it carefully.

BEVERLEY R. TUCKER, M.D.

XUM

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WYNDHAM B. BLANTON, M. D.
Editor

AGNES V. EDWARDS
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Editorial

A Heroine Resurrected.

As a biography *Edith Cavell* by Helen Judson (The Macmillan Company, $2.50) might not receive editorial comment in a medical journal, but as a statement of the ideals of the nursing profession it possesses significance for the doctor as well as for the general public.

Presenting too little of that intimate detail of daily speech and behavior that makes a person come alive though dead for years, the book fails to achieve a three dimensional portrait of its subject. Miss Cavell remains to the end somewhat "shadow like and dry", though her early life spent with a puritanical father and gentle mother in the "shadow of duty" and in the "shadow of the church" carries conviction for the child psychologist, amateur and professional; but the very lack of humanizing and irrelevant material in the book, and the very reiteration with which the author presents the crystal clear virtues of this nurse, whose work in introducing the scientific type of hospital and private duty nursing to Belgium in 1907 should make her memorable without her tragic death, serve to endow her with an heroic quality that may make her a more real standard bearer for the profession than the now distant figure of Florence Nightingale.

The author sees Edith Cavell as a person with an overwhelming desire to do something for people "most of them so helpless, so hurt and so unhappy"; a person who never admitted defeat in the face of unsurmountable obstacles; who told the truth to the letter; who governed by manner rather than by word; who was energetic and adaptable, of driving purpose and amazing industry, thoughtful, considerate, of a quiet dignity and reserved aloofness that suggested hidden resources within. Her two faults, a lack of imagination and a lack of humor are not unexpected in view of her ability to work steadily, unremittingly and with fanatic zeal.

No one wishes for our nurses a return to the salary of $180.00 a year, with twelve-hour duty (one-half day off a week, a full day off a month, and a month's vacation), which was the lot of the Belgian nurses of Miss Cavell's creation, but one wishes for them, as for all persons having to do with the needs of humanity, Miss Cavell's conviction that theirs must be more than a mere profession, that it must be love-inspired as well as technically efficient.

One hopes the American nurses training schools will be spared the horrors that doubled and redoubled their opportunity to grow and serve in Belgium in 1914, but one wishes to call their attention to this book's testimony that a good pattern

of hospital and training school and matron can be carried unchanged into entirely different conditions by a thoroughly indoctrinated pupil whose character is firm enough to make up for any lack of genius. "Education . . . is a painful, continual difficult work to be done by kindness, by watching, by warning, by precept, and by praise, but above all—by example."

To every reader in these dark days so pitifully repeating all the terror and courage of the last war, there is timely patriotism in Miss Judson's book. George Eliot's stern promise that "the reward of one duty is the power to fulfill another"; Frank Crane's pronouncement that "your sole contribution to the sum of things is yourself"; Dr. Holmes' fine words that "Only when you have worked alone, when you have felt around you a black gulf of solitude more isolating than that which surrounds the dying man, and in hope and despair have trusted to your own unshaken will—then only will you have achieved"; and Miss Cavell's last words: "I know now patriotism is not enough; I must have no bitterness toward any one", are the kinds of quotations Americans need to feed on just now. It is to be noted that Miss Cavell said "Patriotism is not enough". She did not say "Patriotism is nothing". She loved humanity, therefore she loved her country, and she quietly laid down her life for it.

One feels at the end of this book that it is high time the discussion stopped as to the Germans' right, or lack of right, to shoot this woman. She herself knew that "you can't civilize the military" and that "the law is silent during war" when she assisted English and Belgian refugees to escape the German authorities by harboring them in her hospital and aiding them on their perilous way across the lines. She knew her danger. She was willing to accept the penalty. It is time we turned our attention to her heroism in dying her death, and to her devotion to duty in living her life.

The Healthier Profession.

Chance access to the ages of the fifty-six ministers of the Presbyterian Church in the United States who died in the last year disclosed that the average age of death among them was 70.5, and that the median age was 72. Impressed with this longevity, we were inspired to turn to the records of deaths among physicians printed weekly in *The Journal of the American Medical Association.* It was calculated from 500 deaths there recorded that the average age of physicians dying in the United States in 1940 was 63.1 and that the median age was 66. These figures would seem to indicate that the young man who will be content with three score years in this vale of tears may go into medicine, but that the young man who wishes by reason of strength to achieve three score years and ten has a better chance for it in the ministry.

Sunburn.

At a time when many persons are subjecting themselves to sunburn accidentally or purposefully, a warning issued by the United States Public Health Service is timely. Physicians occasionally see serious cases of acute sunburn and there are instances on record in which sunburn has proved fatal. Year after year vacationists go to the seashore, and, stripped of most of their clothes, expose themselves to the tanning rays of the run. If they acquire their tan gradually with the use of protective oils a deep pigmentation often follows. It is against this severe, chronic sunburn incurred season after season that the Public Health Service cautions. Ultraviolet radiation is capable of producing skin cancer in animals. Outdoor workers, such as farmers and sailors, are frequent victims of skin cancer, especially on the exposed parts of the body. Blondes are more susceptible than brunettes. Negroes are rarely affected. Judicious exposure to the sun is beneficial, but it needs to be stated again and again that severe sunburns, either acute or chronic, carry hazards all the more real because they are not generally appreciated.

Books About Doctors.

The Readers Digest has recently published a list of popular books relating to the medical profession in which the public has for the last few years shown a curiosity almost morbid. The list is worth passing on. It will serve a number of useful purposes. You may wish to recommend or give one of these books to a friend; you may be asked by a prospective medical student for informative or inspirational literature; you may wish to put one or all of these books in your own library. Here they are!

The Life of Pasteur by René Vallery-Radot (Doubleday, Doran).

Men Against Death by Paul de Kruif (Harcourt, Brace).

Microbe Hunters by Paul de Kruif (Harcourt, Brace).

The Little Doc by Frazier Hunt (Simon & Schuster).

XUM

The Beloved Physician by Robert MacNair Wilson (Macmillan).
Madame Curie by Eve Curie (Doubleday, Doran).
Doctors on Horseback by James T. Flexner (Viking).
Life of Edward Jenner by Frederic G. D. Drewitt (Longmans).
American Doctor's Odyssey by Victor Heiser (Norton).
Forty Years For Labrador by Sir Wilfred Grenfell (Houghton Mifflin).
Short Life of Florence Nightingale by Sir Edward T. Cook (Macmillan).
Born That Way by Earl Reinhold Carlson (John Day).
The Horse and Buggy Doctor by Arthur E. Hertsler (Harper).
Relief of Pain by René Fülöp-Miller (Bobbs-Merrill).
As I Remember Him by Hans Zinsser (Little, Brown).
The Great Physician by Edith G. Reid (Oxford University Press).
Life of Mendel by Hugo Iltis (Norton).
William Crawford Gorgas by Marie D. Gorgas and Burton J. Hendrick (Doubleday, Doran).
The Doctor in History by H. W. Haggard (Yale University Press).
Behind The Doctor by Logan Clendening (Knopf).
The Story of Surgery by Harvey Graham (Doubleday, Doran).
Devils, Drugs and Doctors by H. W. Haggard (Harper).
The Lame, The Halt and The Blind by H. W. Haggard (Blue Ribbon).
Disease and Destiny by Ralph Hermon Major (Appleton-Century).
Rats, Lice and History by Hans Zinsser (Blue Ribbon).
The Great Doctors by Henry E. Sigerist (Norton).
Medical Magic by David Dietz (Dodd, Mead).
Advancing Fronts of Science by George Gray (McGraw Hill).
Research, The Pathfinder of Science and Industry by T. A. Boyd (Appleton-Century).
Medicine and Mankind by Iago Galdston (Appleton-Century).
Magic in a Bottle by Milton Silverman (Macmillan).
The Human Body by Logan Clendening (Knopf).
The Science of Life by H. G. Wells, J. S. Huxley and G. P. Wells (Doubleday, Doran).
Biography of the Unborn by Margaret Shea Gilbert (Williams & Wilkins).
Unresting Cells by R. W. Gerard (Harper).
The Wisdom of The Body by Walter B. Cannon (Norton).
What It Means To Be A Doctor by Dwight Anderson (Medical Society of the State of New York).
The Medical Career by Harvey Cushing (Little, Brown).
Do You Want to Become A Doctor? by Morris Fishbein (Stokes).
Medical Occupations Available to Boys When They Grow Up by L. M. Klinefelter (Dutton).
Medical Occupations For Girls: Women in White by L. M. Klinefelter (Dutton).
The Young Man and Medicine by L. F. Parker (Macmillan).

Presidents Message

Group Medical Examinations of Selectees.

The medical examinations of men coming under the Selective Service Act has now been going on for several months. We have acquired considerable information and are now in a position to draw certain conclusions. It was reasonable to expect that in the early days of these examinations there would be a considerable amount of confusion, due to a lack of understanding of the various regulations covering these examinations. I feel, however, that physicians in this state have a reason to be proud of their record. The average percentage of rejections at the two Induction Stations in Virginia—Richmond and Roanoke—has been 15.69, while in the other Induction Stations in the Third Corps Area the percentages have been 25.37, 22.97, 21.94, 17.26, 16.07, and 15.43, respectively.

I believe that with proper organization the number of men accepted by the local examiners and later rejected by the Induction Stations can be greatly reduced. That such a result is desirable, can scarcely be questioned. These men who are sent to the Induction Stations and later rejected are often seriously inconvenienced by reason of the fact that they have severed their civilian connections only to be returned to civilian life. This may be embarrassing not only to these men but also to their local examining physicians. The whole procedure is also a matter of considerable expense to the Government.

Experience has been had in certain areas in this state with group examinations of these men. A number of local boards have been combined and one examining team organized. A central point has been selected, with a properly equipped station, where examinations are conducted at stated times for the selectees from all of the boards in the group. This plan has served to provide better facilities, clerical help, and adequate laboratory service. As a result, the physicians' time has been conserved and on the whole more satisfactory examinations have been ob-

tained. In one of these group areas that has been operating for several months the percentage of rejections by the Induction Board has been only 10.49, as compared to an average of 15.69 for the entire state.

It is suggested that this group plan be adopted throughout the state, and that, by a combination of five or more local boards, examining groups be set up at convenient central points. These examining units could be provided with suitable quarters and with adequate equipment for carrying on their work. It is also suggested that as far as possible the burden of carrying on this work be distributed evenly throughout our profession; that is, the groups should be large enough to include all, or nearly all, of the available men in a given area. In the near future it is hoped that there will be put before the physicians of this State a definite plan for carrying this idea into effect. I hope that all of the physicians throughout the State will give careful consideration to the plan.

Those physicians who have been serving on the Selective Service Boards have labored well. They have given generously of their time. There are many others who so far have not been called upon. Since no one can see the end of the present emergency, it would seem wise to set up a more efficient organization and more satisfactorily equalize the labor entailed.

WALTER B. MARTIN.

Proceedings of Societies

Danville-Pittsylvania Academy of Medicine.

Officers of the Academy, elected at its annual meeting are: President, Dr. Charles W. Purcell; vice-presidents, Drs. Snowden C. Hall and Walter McMann; and secretary-treasurer, Dr. Prentice Kinser, Jr., all of Danville.

The Dickenson-Buchanan County Medical Society

Held its first meeting for 1941 in the hospital, at Grundy, on May 21st, with twelve members present. Trachoma was the subject selected and was discussed by practically all doctors present. Dr. Pantera of the Mattie Williams Hospital, Richlands, presented a case and the discussion following disclosed the fact that there are a number of cases in Buchanan County. Delegates and alternates were named at this time to the Virginia Beach meeting of the State Society. Dr. J. C. Moore of Keen Mountain and Dr. T. C. Sutherland of Haysi are president and secretary, respectively.

It was decided to hold the next meeting in Grundy on June the 18th, at which time would be held the annual election of officers.

The Fourth District and Southside Virginia Medical Society

Held its annual meeting in Blackstone on the afternoon of May the 20th, under the presidency of Dr. W. M. Phipps of Hopewell. The following papers were presented:

Foods Which Disagree and Are Disliked During the First Year of Life—Dr. W. Ambrose McGee, Richmond.

Acute Intussusception with Review of Twenty-One Cases—Dr. Edwin L. Kendig, Jr., Richmond.

What Every Physician Should Know About Stomach Trouble—Dr. Guy W. Horsley, Richmond.

The Prevention of Tetanus by Active Immunization—Dr. Wilbur M. Bowman, Petersburg.

Placenta Previa—Dr. Edgar W. Young, Petersburg.

Case Report—Dr. J. Bolling Jones, Petersburg.

At the business session, Dr. Stanley H. Macht of Crewe was elected to membership, and a resolution was passed providing for associate membership for doctors residing out of the territory of the Society. Election of officers was held and resulted in naming the following for the coming year: President, Dr. J. B. Kiser, Emporia; vice-presidents, Drs. B. H. Knight, Surry, and T. S. Jennings, Waverly; recording secretary, Dr. Francis Taylor, Petersburg; corresponding secretary and treasurer, Dr. C. E. Martin, Emporia (re-elected); chairman of steering committee, Dr. Wright Clarkson, Petersburg. Dinner at the Nottoway Tavern followed the meeting.

The Society accepted an invitation to hold its next session at Central State Hospital, Petersburg, on August the 5th.

Norfolk County Medical Society.

At the annual meeting of this Society on the evening of June the 2nd, the following officers were

elected to take office October 1: President, Dr. M. S. Fitchett; president-elect, Dr. A. Brownley Hodges; vice-president, Dr. Mallory S. Andrews; secretary-treasurer, Dr. Lockburn B. Scott, all of Norfolk. This will make the twenty-second consecutive year of service for the Society on the part of Dr. Scott.

At this meeting, also, delegates and alternates were elected to represent the Society at the next meeting of the State Society at Virginia Beach in October.

Northern Neck Medical Association.

The spring meeting of the Association was held at Heathsville on May the 22nd, at which time Drs. James H. Smith, Douglas G. Chapman and W. L. Peple of Richmond presented papers. The physicians were guests of Dr. and W. B. Richardson for lunch just prior to the scientific session. Dr. P. E. Lilly of Kilmarnock is president and Dr. Lee S. Liggan of Irvington, secretary.

News Notes

1941 Meeting of the Medical Society of Virginia Virginia Beach, October 6, 7, 8

Plans are shaping up splendidly for the next meeting of the Society at Virginia Beach. While The Cavalier is to be headquarters, with all sessions held there, several other excellent hotels will be open in October. These, with rates, are listed in the May issue of the MONTHLY. It is suggested that reservations be made promptly. Interesting hobbies will be displayed by some members and there will also be excellent scientific and commercial exhibits. The program is being arranged to allow social pleasures as well. You should not miss this meeting.

Commencements of Virginia Medical Schools.

MEDICAL COLLEGE OF VIRGINIA

The 103rd session commencement exercises of the College were held May 31st through June 3rd, with the Student Body Dance being on the 31st. The Reverend Vincent C. Franks, D. D., Rector, Saint Paul's Episcopal Church, delivered the commencement sermon on the 1st. Alumni registration began on the 2nd and ended with the usual banquet that night. Dr. T. Dewey Davis of Richmond was elected president for the coming year, with Dr. Harry L. Claud of Washington, D. C., as first vice-president. Dr. Harvey B. Haag of Richmond will be treasurer.

A buffet luncheon was held on Tuesday for the Board of Visitors, Alumni, Faculty, and Senior Classes. The final exercises were held at the Mosque that night, the commencement address being delivered by Dr. Theodore Meyer Greene, McCosh Professor of Philosophy of Princeton University. The Honorary Degree of Doctor of Science was conferred on William Newton Hodgkin, Member of the Council on Dental Education of the American Dental Association. Diplomas were awarded to 171 graduates: 74 in medicine; 34 in dentistry; 29 in pharmacy; and 34 in nursing. The annual reception and dance closed the program.

The following are graduates in medicine, with hospital appointments:

HOSPITAL DIVISION, MEDICAL COLLEGE OF VIRGINIA, RICHMOND—Drs. Frank Neville Buck, Jr., Portsmouth; William Etzler Daner, Paden City, W. Va.; Marina Diez-Rivas, Caguas, P. R.; John Thomas Gianoulis, High Point, N. C.; Julius Charles Hulcher, Richmond; Cary Frederick Irons, Jr., Rockbridge Baths; Malene Grant Irons, Rockbridge Baths; Donald Shonk Morris, Charleston, W. Va.; Lloyd Fick Moss, Fredericksburg; Thomas Paul O'Brien, Benwood, W. Va.; Carl Putnam Parker, Jr., Seaboard, N. C.; George Sterling Row, Bridgewater; and Robert Hay Taylor, Maplewood, N. J.

JOHNSTON-WILLIS HOSPITAL, RICHMOND — Drs. Thomas Felix Coates, Jr., Tazewell; and William Russell Jones, Jr., Richmond.

STUART CIRCLE HOSPITAL—RICHMOND—Dr. John Edgar Stevens, Jr., Richmond.

UNIVERSITY OF VIRGINIA HOSPITAL, UNIVERSITY—Drs. Olin Mansell Goodwin, Buckhannon, W. Va.; and Adney Kemple Sutphin, Beckley, W. Va.

NORFOLK GENERAL HOSPITAL, NORFOLK—Drs. Melvin Gillette Baynard, North Emporia; Charles Briel Keppler, Richmond; Fletcher Lindsay Rai-

ford, Franklin; Luther Bradford Waters, Jr., Lynchburg; and Julian Andrews White, Virginia Beach.

NORFOLK MARINE HOSPITAL, NORFOLK—Dr. Arthur Broaddus Gravatt, Jr., Ellerson.

LEWIS-GALE HOSPITAL, ROANOKE — Dr. Douglas Best Stratton, Roanoke.

SAINT JOSEPH HOSPITAL, SYRACUSE, N. Y.—Dr. Bradford Sherwood Bennett, Lowville, N. Y..

HARLEM HOSPITAL, NEW YORK, N. Y.—Drs. Irving Chofnas, Roxbury, Mass.; and Abraham Zies, New York, N. Y.

BROOKLYN JEWISH HOSPITAL, BROOKLYN, N. Y.—Dr. Herbert Gershberg, New York, N. Y.

QUEENS GENERAL HOSPITAL, JAMAICA, L. I., N. Y.—Dr. Jerome David Markham, Lawrence, L. I., N. Y.

JERSEY CITY MEDICAL CENTRE, JERSEY CITY, N. J.—Drs. Charles Francis Baldini, Jr., Union City, N. J.; Samuel Blank, Hyde Park, Mass.; Percy John McElrath, Jr., Bramwell, W. Va.; Edith Katherine Mangone, New York, N. Y.; John Jerry Marsella, Schenectady, N. Y.; George Albert Stewart, Jr., Norfolk; and William Robert Woolner, New York, N. Y.

ELIZABETH GENERAL HOSPITAL AND DISPENSARY, ELIZABETH, N. J.—Dr. Walter Humphrey Buffey, Elizabeth, N. J.

CITY HOSPITAL, WINSTON-SALEM, N.C.—Drs. William Henry Bandy, Lincolnton, N. C.; Wiley Aven Preston, Abingdon; and Herbert Walker Burton, Brown's Summit, N. C.

CHARLOTTE MEMORIAL HOSPITAL, CHARLOTTE, N. C.—Dr. Walter Jones McLendon, Kenansville, N. C.

REX HOSPITAL, RALEIGH, N. C.—Dr. Elisabeth Martin, Florence, Ala.

CHARLESTON GENERAL HOSPITAL, CHARLESTON, W. VA.—Drs. Donald Ferguson Babb, Philippi, W. Va.; Mary Virginia Gallagher, Charleston, W. Va.; William Ward Huffman, Webster Springs, W. Va.; and Lester Millard Mason, Seth, W. Va.

CHESAPEAKE AND OHIO HOSPITAL, HUNTINGTON, W. VA.—Drs. Norris Foster Hines, Huntington, W. Va.; Wade Herbert Rardin, Beckley, W. Va.; and William Frederick Richmond, Beckley, W. Va.

PHILADELPHIA GENERAL HOSPITAL, PHILADELPHIA, PA.—Dr. Herbert Clifton Allen, Jr., Richmond.

WILKES-BARRE GENERAL HOSPITAL, WILKES-BARRE, PA.—Dr. Isa Costen Grant, Greenville, N. C.

BRYN MAWR HOSPITAL, BRYN MAWR, PA.—Dr. Maurice Raymond Nance, Norfolk.

CINCINNATI GENERAL HOSPITAL, CINCINNATI, OHIO—Dr. Ernest Beverly Agee, Jr., Dehue, W. Va.

HENRY FORD HOSPITAL, DETROIT, MICH.—Dr. John Otto Boyd, Jr., Roanoke.

ELOISE HOSPITAL, ELOISE, MICH.—Dr. Edward Toshio Matsuoka, Honolulu, Hawaii.

GALLINGER MUNICIPAL HOSPITAL WASHINGTON, D. C.—Dr. Pete Commings, Charlottesville.

GARFIELD MEMORIAL HOSPITAL, WASHINGTON, D. C.—Dr. Margarita Fuertes-Correa, Arecibo, P. R.

WALTER REED GENERAL HOSPITAL, WASHINGTON, D. C.—Dr. Arthur Abbitt Kirk, Suffolk.

BAYAMON CHARITY DISTRICT HOSPITAL, BAYAMON, P. R.—Drs. Jorge Anibal Colon-Davila, Rio Piedras, P. R.; and Jose Luis Robert, Santurce, P. R.

BARONESS ERLANGER HOSPITAL, CHATTANOOGA, TENN.—Dr. Estill Leftrage Caudill, Jr., Elizabethton, Tenn.

BAPTIST MEMORIAL HOSPITAL, MEMPHIS, TENN.—Dr. Herschell Marcus Cooke, Grayson, Ky.

NORWALK GENERAL HOSPITAL, NORWALK, CONN.—Dr. Robert Lawrence Corbell, Jr., Portsmouth.

UNIVERSITY OF OKLAHOMA HOSPITAL, OKLAHOMA CITY, OKLA. — Dr. Fletcher Ishmael Dorsett, Thomasville, N. C.

UNIVERSITY OF ARKANSAS HOSPITAL, LITTLE ROCK, ARK.—Dr. Robert Sears Faircloth, Norfolk.

STATE OF WISCONSIN GENERAL HOSPITAL, MADISON, WIS.—Drs. Carolyn Moore McCue, Richmond; and Howard McDowell McCue, Jr., Richmond.

UNION MEMORIAL HOSPITAL, BALTIMORE, MD.—Dr. Willam Lowndes Peple, Jr., Richmond.

LOUISVILLE CITY HOSPITAL, LOUISVILLE, KY.—Dr. Luke Walter Query, Jr., Charlotte, N. C.

ROPER HOSPITAL, CHARLESTON, S. C.—Dr. James Slade Rhodes, Jr., Williamston, N. C.

Others who received their degrees at this time are:

Dr. Sidney Lyons, Lexington.

Dr. Maysville Owens Page, Richmond.

Dr. John Stuart Williams, North Garden.

UNIVERSITY OF VIRGINIA

The final exercises of the University of Virginia were held June 6th through 9th. There were 540 members of the graduating class, the largest in the history of the school. Alumni Day was on the 7th

and Louis A. Johnson, former assistant secretary of war, welcomed the graduates into the alumni body. Marshall Field of New York City delivered the commencement address.

It was announced at this time that the sum of $50,000 had been given the University for the purpose of purchasing, remodeling and equipping a large private residence to be operated as a convalescent home for crippled children under the Department of Orthopedics.

The fifty-four graduates in medicine, with hospital appointments, are as follows:

UNIVERSITY OF VIRGINIA HOSPITAL, UNIVERSITY—Drs. Benjamin Walter Berner, Paterson, N. J.; Roy Stinson Bigham, Jr., Charlotte, N. C.; William Edward Bray, Jr., University; John Gordon Coleman, Lexington, Ky.; William Robert Dandridge, Kermit, W. Va.; Jorge Garcia-Bird, Fajardo, P. R.; James Mercer Moss, Arlington; Joseph Lawson Platt, Emory; Charles D. Schilling, Glen Cove, N. Y.; Philip Laub Shultz, Charlottesville; and Harold Taylor Yates, University.

HOSPITAL DIVISION, MEDICAL COLLEGE OF VIRGINIA, RICHMOND—Drs. James Motley Booker, Lottsburg; and Alvah Livingston Herring, Jr., Richmond.

UNITED STATES MARINE HOSPITAL, NORFOLK—Dr. George Parker Hand, Jr., Norfolk.

LEWIS-GALE HOSPITAL, ROANOKE — Dr. Rowland Hatton Robertson, Jr., Suffolk.

HOSPITAL OF ST. VINCENT DE PAUL, NORFOLK—Dr. Aubrey Lawrence Shelton, Norfolk.

ST. ELIZABETH'S HOSPITAL, RICHMOND—Dr. Spotswood Douglas Stoddard, Savannah, Ga.

VIRGINIA MASON CLINIC, SEATTLE, WASH.—Drs. Fred Edward Cleveland, Jr., Swoope; Marcellus Alexander Johnson, III, Roanoke; and Thomas McCreery Sawyers, Hinton, W. Va.

NEW YORK HOSPITAL, NEW YORK—Dr. George Clayton Armistead, Jr., Roanoke.

ST. LUKE'S HOSPITAL, NEW YORK—Drs. John Lee Couper, Lexington; and Edward Eugene Mullen, Smithfield, N. C.

CORNELL DIVISION, BELLEVUE HOSPITAL, NEW YORK—Dr. Clara Lyman Day, Hartford, Conn.

NEW YORK POST-GRADUATE HOSPITAL, NEW YORK—Dr. Edward Gill Face, Jr., Norfolk.

STRONG MEMORIAL HOSPITAL, ROCHESTER, N. Y.—Dr. John Richard Morris, Charlottesville.

BARONESS ERLANGER HOSPITAL, CHATTANOOGA, TENN.—Drs. Walter Buckner, II, Roanoke; and Robert Harrison Giles, Jr., Roanoke.

VANDERBILT UNIVERSITY HOSPITAL, NASHVILLE, TENN.—Dr. Willis Merriman Hendricks, Roanoke.

ST. FRANCIS HOSPITAL, PITTSBURGH, PA.—Dr. Edward Thomas Dunn, Jr., Clifton Forge.

ST. LUKE'S HOSPITAL, BETHLEHEM, PA.—Dr. Lewis Edward Mangus, Vesuvius.

WILKES-BARRE GENERAL HOSPITAL, WILKES-BARRE, PA.—Dr. Edward Seymour Orzac, Norfolk.

DUKE UNIVERSITY HOSPITAL, DURHAM, N. C.—Drs. Samuel Marshall McDaniel, Jr., University; and Armistead Dandridge Williams, Richmond.

ST. LOUIS CITY HOSPITAL, ST. LOUIS, MO.—Dr. James Britton Bain, Portsmouth.

HARRISON MEMORIAL METHODIST HOSPITAL, FT. WORTH, TEX.—Dr. Henry Rives Coleman Chalmers, Phenix.

CHURCH HOME AND INFIRMARY, BALTIMORE, MD.—Dr. Hollen Garber Helbert, Harrisonburg.

SOUTH BALTIMORE GENERAL HOSPITAL, BALTIMORE, MD.—Dr. Abraham Lewis Kolodny, Norfolk.

UNION MEMORIAL HOSPITAL, BALTIMORE, MD.—Dr. Alexander Erskine Sproul, Staunton.

JOHNS HOPKINS HOSPITAL, BALTIMORE, MD.—Dr. Allan Bevier Warren, Jr., Orange.

SINAI HOSPITAL, BALTIMORE, MD. — Dr. Daniel Yuter, Charlottesville.

TOURO INFIRMARY, NEW ORLEANS, LA.—Dr. George Anderson Hardie, Auburn, Ala.

CHARITY HOSPITAL OF LOUISIANA, NEW ORLEANS, LA.—Dr. Cecil Lowry Sinclair, Hampton.

CLEVELAND CITY HOSPITAL, CLEVELAND, OHIO.—Dr. Thomas Cobb King, Jr., Anniston, Ala.

CINCINNATI GENERAL HOSPITAL, CINCINNATI, OHIO—Dr. Kelly Tilson McKee, Bristol.

UNIVERSITY OF MINNESOTA HOSPITAL, MINNEAPOLIS, MINN.—Dr. William Smith Hawkins, Greenville, S. C.

WALTER REED HOSPITAL, WASHINGTON, D. C.—Dr. Newton Wheeler Larkum, Charlottesville.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL, WASHINGTON, D. C.—Dr. Carey Addison Stone, Jr., Crewe.

GALLINGER MUNICIPAL HOSPITAL, WASHINGTON, D. C.—Dr. Betty Gordon Williams, Richmond.

INDIANAPOLIS CITY HOSPITAL, INDIANAPOLIS, IND.—Dr. James Spicer Murray, Baltimore, Md.

HARPER HOSPITAL, DETROIT, MICH. — Dr. Hugh Leander Sulfridge, Jr., Charlottesville.

GRADY MEMORIAL HOSPITAL, ATLANTA, GA.—Dr. John Mackey Trapnell, Jr., Charlestown, W. Va.

MONTREAL GENERAL HOSPITAL, MONTREAL, CANADA—Dr. Philip Cary Whitehead, Chatham.

EMORY UNIVERSITY HOSPITAL, ATLANTA, GA.—Dr. William Rush Whitman, Jr., Roanoke.

The Jefferson Medical College of Philadelphia.

The One Hundred Sixteenth Annual Commencement was held on June 6, 1941. The commencement address was delivered by Dr. J. M. T. Finney, Emeritus Professor of Surgery, Johns Hopkins Medical School, on "The True Province of the Doctor".

The Graduating Class numbered 120, bringing the total number of graduates to 16,814. The graduates represented eighteen different states, the Territory of Hawaii and Puerto Rico, Korea and Iran. Forty-three members of the Graduating Class were commissioned as First Lieutenants in the Medical Reserve Corps of the United States Army. The commissions were presented by Dr. Asa M. Lehman, Lt. Col., M. C., U. S. A.

The honorary degree of Doctor of Letters was conferred upon John Miller Turpin Finney, M. D., LL.D., Emeritus Professor of Surgery, Johns Hopkins Medical School.

The Annual Alumni Dinner was held on June 5, 1941, at the Bellevue-Stratford Hotel with 536 alumni in attendance: Dr. Edward L. Bauer, '14, President of the Alumni Association, presided. The speakers were Mr. Robert P. Hooper, President of the Board of Trustees; Dr. Henry E. Radasch, Pennsylvania, Professor of Histology and Embryology, in the Department of Anatomy, representing the Class of 1901; Dr. Francis F. Borzell, Pennsylvania, representing the Class of 1906; Dr. Frank H. Krusen, Minnesota, representing the Class of 1921; Dr. John H. Chambers, Commander M. C., U. S. N., representing the Class of 1916, and Dr. John J. Gill, Pennsylvania, President of the graduating class and representing the Class of 1941.

Alumni Day and Ex-Internes' Day Clinics were held on June 4 and 5, in the Clinical Amphitheatre of the Jefferson Hospital.

The Graduating Class of 1941 presented a portrait of Dr. George Alvin Ulrich to the College on March 6, 1941.

The following promotions in the teaching corps have been made during the past session: Dr. Lewis C. Scheffey, Professor of Gynecology; Dr. John B. Montgomery, Clinical Professor of Gynecology; Dr. Burgess L. Gordon, Clinical Professor of Medicine; Dr. Austin T. Smith, Associate Professor of Laryngology; Dr. Andrew Ramsay, Associate Professor of Histology and Embryology; Dr. Leandro M. Tocantins, Associate Professor of Medicine; Dr. Franklin R. Miller, Associate Professor of Medicine; Dr. William T. Lemmon, Assistant Professor of Surgery; Dr. C. Calvin Fox, Assistant Professor in Laryngology.

American Medical Association.

The ninety-second annual session of the Association in Cleveland, early in June, had a registered attendance through Thursday, next to the last day, of 7,194. Members of the Medical Society of Virginia who registered in the sixty-six reported from Virginia are:

CHARLOTTESVILLE
Dr. V. W. Archer
Dr. H. B. Mulholland
Dr. Oscar Swineford
Dr. F. D. Woodward

NORFOLK
Dr. Ben L. Boynton
Dr. R. DuVal Jones
Dr. Walter B. Martin
Dr. Julian L. Rawls

ROANOKE
Dr. Calvin T. Burton
Dr. Robt. R. Rudolph
Dr. Hugh H. Trout

PETERSBURG
Dr. Wright Clarkson
Dr. L. S. Early

NEWPORT NEWS
Dr. J. Warren Sayre
Dr. L. E. Stubbs

HARRISONBURG
Dr. J. H. Deyerle
Dr. C. M. Vaughan

RICHMOND
Dr. Thomas Beath
Dr. Regena Beck
Dr. William Bickers
Dr. R. D. Butterworth
Dr. Guy W. Horsley
Dr. J. Shelton Horsley
Dr. William A. Johns
Dr. J. D. Kernodle
Dr. Fredk. Mandeville
Dr. Emmett C. Matthews
Dr. W. Ambrose McGee
Dr. Walter L. Nalls
Dr. Benj. Rawles, Jr.
Dr. Wellford C. Reed
Dr. I. C. Riggin
Dr. M. P. Rucker
Dr. James B. Stone
Dr. Elam C. Toone, Jr.
Dr. Warren T. Vaughan
Dr. Harry Walker
Dr. H. Hudnall Ware

Dr. E. M. Babb, Ivor.
Dr. Harloe Bailey, Rural Retreat.
Dr. L. O. Crumpler, Danville.
Dr. H. S. Daniel, Louisa.
Dr. Herman Lee Harris, Richlands.
Dr. C. C. Hatfield, North Holston.
Dr. R. L. Hillman, Emory.

Dr. L. A. Houff, Clifton Forge.
Dr. A. D. Hutton, Marion.
Dr. M. B. Jarman, Hot Springs.
Dr. J. Paul Kent, Altavista.
Dr. C. F. Manges, Blacksburg.
Dr. Lemuel E. Mayo, Portsmouth.
Dr. H. C. McCoy, Gordonsville.
Dr. Geo. A. Reynolds, Bowling Green.
Dr. D. M. Thomasson, Lynchburg.

Dr. Frank H. Lahey succeeded to the presidency and Dr. Fred W. Rankin of Lexington, Ky., former North Carolinian, was named president-elect, with Dr. Charles A. Dukes of Oakland, Calif., as vice-president. Dr. Olin West continues as secretary and Dr. H. H. Shoulders of Nashville, Tenn., as speaker of the House of Delegates.

Atlantic City is to be the 1942 place of meeting.

The West Virginia State Medical Association

Met in Charleston the middle of May, under the presidency of Dr. Robert K. Buford of that city. Dr. Richard O. Rogers of Bluefield was elected president and will take office January 1, 1942. He is a native of Virginia, and a graduate of the Medical College of Virginia in the class of 1907 and thus well known to many of our readers. The vice-presidents will be Dr. Guy H. Michael of Belington and Dr. E. H. Starcher of Earling. Dr. T. M. Barber of Charleston will continue as treasurer and Mr. Joe W. Savage also of Charleston as executive secretary. It was decided to return to White Sulphur Springs for the 1942 meeting.

The Neuropsychiatric Society of Virginia

Held its regular meeting at the Academy of Medicine Building in Richmond on June 18th at 2:00 p. m., with Dr. W. Gayle Crutchfield of Richmond, president, presiding. Dr. E. H. Williams, also of Richmond, was at the secretary's desk. The program was as follows:

Psychodynamic Aspects of War and Extenuating Crises—Dr. Howard R. Masters, Richmond.
A Description of the Rorschach Experiment—Dr. James B. Funkhouser, Marion.
Psychoses Among Students Requiring Hospitalization—Dr. O. B. Darden, Richmond.
Psychotherapy in Children—Dr. Leo Kanner, Baltimore.

Dr. Kanner, who is associate professor of psychiatry at Johns Hopkins Medical School, was the invited guest of the Society.

Dinner at the Richmond Hotel followed the meeting.

Medical Society of the State of North Carolina.

Dr. Hubert Haywood of Raleigh presided at the last meeting of this Society held at Pinehurst, May 19-21. Before adjournment, Dr. F. Webb Griffith of Asheville was installed as president. Those elected at this session are: President-elect, Dr. Donnell B. Cobb, Goldsboro; vice-presidents, Dr. Thomas DeL. Sparrow of Charlotte and Dr. T. L. Carter of Gatesville; and secretary-treasurer, Dr. Roscoe D. McMillan of Red Springs. It was decided to hold the 1942 meeting in Charlotte.

Medical Society of the District of Columbia.

At the annual meeting of the Society, Dr. A. Magruder MacDonald was chosen president-elect to take office in 1942, and Drs. J. Lawn Thompson, Jr., and Grace G. Purse were elected vice-presidents. In July Dr. Henry R. Schreiber will succeed Dr. Daniel L. Borden as president.

Honors for Faculty Members of the New York Polyclinic Medical School and Hospital.

Dr. Joseph F. McCarthy, Professor of Urology at the New York Polyclinic Medical School and Hospital, was awarded the Francis Amory prize by the American Academy of Arts and Sciences, for his work in Urology.

Dr. Samuel J. Kopetzky, Professor Otolaryngology at the New York Polyclinic Medical School and Hospital, has been elected president of the Medical Society of the State of New York.

Dr. Maximilian A. Ramirez, Professor of Medicine at the New York Polyclinic Medical School and Hospital, has been elected president of the Medical Society of the County of New York.

Dr. L. Nelson Bell,

An alumnus of the Medical College of Virginia, class of '16, for sometime head of the surgical department of the Tsingkiangpu General Hospital, Southern Presbyterian Mission in Tsingkiangpu, China, has returned to the United States this summer on regular furlough and will have his headquarters in Waynesboro while here.

In a booklet giving a summary of the work of this hosiptal for 1940, it is interesting to note the large amount of work accomplished. The total number of patients in the hospital during the year, including 116 babies born in the hospital, was 6,837. In addition, there were 128,974 out-patient depart-

ment visits, which includes the same patient only once for each day, irrespective of the number of departments visited.

Dr. Raiford Honored.

On March 18, 1941, the Fourth District and Southside Virginia Medical Society conferred an honor upon Dr. R. L. Raiford of Franklin by presenting him with a gold watch and chain properly engraved to express its deep sense of appreciation for his long service as secretary of the Southside Virginia Medical Society.

The presentation was made by Dr. C. S. Dodd of Petersburg, the last president of the Southside Virginia Medical Society before its consolidation with the Fourth District Society to form the Fourth District and Southside Virginia Medical Society.

Dr. C. C. Coleman,

Richmond, president of the William and Mary Alumni Association and recently appointed board member by Governor Price, was honored at the commencement exercises of his alma mater with a medal for faithful and devoted service to his college.

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On May 13th, Dr. W. W. Waddell, Jr. spoke before the Mississippi State Medical Association, meeting in Biloxi. His subject was Vitamin K in the Newborn.

At the meeting of the St. Louis Medical Society on May 13th, Dr. Vincent W. Archer discussed X-ray and Gastro-Intestinal Diagnosis.

On May 22nd, Dr. J. M. Meredith participated in the Post-Graduate Course in Medicine and Surgery for the Loudoun County Medical Society conducted under the auspices of the Department of Clinical and Medical Education of the Medical Society of Virginia. He spoke on Management of Head Injuries.

At the meeting of the American Otological Society in Atlantic City on May 26th, Dr. Fletcher D. Woodward presented a paper on The Use of a Temporary Inexpensive Bite Block to Determine the Relationship Between the Closed Bite and Temporomandibular Joint Symptoms.

Drs. Fletcher Woodward and Oscar Swineford, Jr. presented a joint paper before the Oto-Rhino-Laryngological Section of the American Medical Association in Cleveland entitled, Allergic Rhinitis.

At the recent meeting of the American Society for the Study of Allergy in Cleveland, Dr. Oscar Swineford, Jr. was elected Vice-President for the coming year.

Fifty-four students were graduated with the Degree of Doctor of Medicine at the Finals Exercises on June 9, 1941.

The Second Post-Graduate Course in Medicine sponsored by the Department of Internal Medicine of the University of Virginia and the Department of Clinical and Medical Education of the Medical Society of Virginia was held at the Medical School and Hospital from June 16th to 21st. The guest speakers were Dr. Warfield M. Firor, Associate Professor of Surgery at Johns Hopkins Medical School, who spoke on Sulfaguanidine, and Dr. Walter O. Klingman, Associate in Neurology at the College of Physicians and Surgeons in New York City, who discussed Autonomic Drugs. The list of those giving lectures and holding clinics included the following members of the Faculty of the University of Virginia Medical School: Drs. William E. Bray, Professor of Clinical Pathology; Edwin P. Lehman, Professor of Surgery and Gynecology; Sydney W. Britton, Professor of Physiology; Alfred Chanutin, Professor of Biochemistry; James R. Cash, Professor of Pathology; Tiffany J. Williams, Professor of Obstetrics and Gynecology; Robert V. Funsten, Professor of Orthopedics; Dudley C. Smith, Professor of Dermatology and Syphilology; Fletcher D. Woodward, Professor of Diseases of the Ear, Nose and Throat; Vincent W. Archer, Professor of Roentgenology; Henry B. Mulholland, Professor of Practice of Medicine; J. Edwin Wood, Professor of Practice of Medicine; C. Bruce Morton, Professor of Clinical Surgery and Gynecology; George M. Lawson, Professor of Preventive Medicine and Bacteriology; Andrew D. Hart, Professor of Clinical Medicine; Eugene M. Landis, Professor of Internal Medicine; David C. Wilson, Professor of Psychiatry and Neurology; William W. Waddell, Associate Professor of Pediatrics; Samuel A. Vest, Associate Professor of Urology; Edward L. Corey, Associate Professor of Physiology; Staige D. Blackford, Assistant Professor of Medicine; Oscar Swineford, Jr., Assistant Professor of Medicine; John M. Meredith, Assistant Professor of Neurological Surgery; Frank B. Stafford, Assistant Professor of Phthisiotherapy; Arthur M.

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Smith, Instructor in Surgery; William H. Parker, Instructor in Surgery; Byrd S. Leavell, Instructor in Medicine; William R. Hill, Instructor in Surgery; and Julian R. Beckwith, Instructor in Medicine. Thirty-one physicians registered for the course.

Dr. Wyndham B. Blanton,

Of Richmond delivered the commencement address at the exercises of the Medical College of the State of South Carolina in Charleston, June 5. He spoke on the Bedside Manner.

Dr. E. T. Terrell

Was elected head of the Williamsburg Lions Club at its meeting on June the 3rd. He with other new officers will be installed at the July meeting.

Symposium on Industrial Health.

The department of preventive medicine at the Medical College of Virginia is putting on this year its second symposium on industrial health. The meetings will be held in the Simon Baruch Auditorium, Thursday and Friday, September 11 and 12, 1941.

The Virginia Manufacturers' Association and the Richmond Chamber of Commerce are cooperating again this year in the program, and the Committee on Industrial Health of the Medical Society of Virginia and the State Health Department's Bureau of Industrial Hygiene are among the sponsors of the program.

The night program this year is again arranged to be of interest to laymen as well as to the medical profession. Mr. Philip Drinker, professor of industrial hygiene, at the Harvard School of Public Health, Boston, will speak on "The Significance of Industrial Health in National Defense". Dr. Edward J. Stieglitz, of the National Institute of Health, United States Public Health Service, will talk on "Aging as a Problem of Industrial Health".

There are to be morning and afternoon programs both on Thursday and Friday. On these programs are both the president of the American Association of Industrial Physicians and Surgeons and the president of the American Industrial Hygiene Association.

Dr. Walter B. Martin, president of the Medical Society of Virginia, will tell briefly what work the State Medical Society's Committee on Industrial Health is doing. The full program will be printed in a later issue of the MONTHLY.

Dr. Lockburn B. Scott,

Of Norfolk, left on June the 7th to spend the summer visiting his daughters in Winnipeg, Manitoba, Canada. He will return to Norfolk the latter part of September.

Dr. Linwood D. Keyser,

Roanoke, by invitation, discussed "Recent Advances in Medical Research" in Blacksburg, May 30th, at a banquet of the Virginia Polytechnic Institute, Chapter of Sigma Xi, national scientific honorary fraternity. Dr. Keyser is a former member of the Mayo Clinic chapter of this fraternity and became affiliated with the Blacksburg chapter last December.

Married.

Dr. John Hansford Thomas, Jr., of Greenville and Miss Mary Johnston Lasley, of Staunton, June 19.

Dr. John Osborne McNeel, University, and Miss Rose Lee Williams, Charlotte, N. C., June 16.

Dr. William Taliaferro Thompson, Jr., of Richmond, but now located in Boston, Mass., and Miss Jessie Gresham Baker, Richmond, June 21.

Dr. Kenneth Jerome Cherry and Miss Alice Palmer Cottingham, both of Richmond, June 14.

Dr. Francis Record Whitehouse, recently interning at Charity Hospital in New Orleans, but now at Mayo Clinic, Rochester, Minn., and Miss Doris Irion of Dallas, Texas, June 21.

The American Gynecologic Society

Held its annual meeting May 26-28, at Colorado Springs, this being the first time the Society has met so far west. The membership is slightly over a hundred and about 50 per cent of these attended. An excellent program was presented with the president, Dr. Jennings C. Litzenberg of Minneapolis presiding. Dr. William C. Danforth of Evanston, Ill., was elected president; Drs. H. J. Stander of New York City and C. B. Ingraham of Denver, vice-presidents; Dr. Howard Taylor, Jr., of New York City, secretary; and Dr. Philip F. Williams of Philadelphia, treasurer. Dr. M. P. Rucker of Richmond was among those attending.

The next meeting will be held at Sky Top in the Pocono Mountains of Pennsylvania in the spring of 1942.

Dr. Thomas M. Winn,

Of Covington, received the highest number of

votes in the councilmanic election held in that town in June and will be next mayor of Covington. In addition to his civic interests, Dr. Winn is a prominent eye, ear, nose and throat specialist of that town.

Gill Memorial Eye, Ear and Throat Hospital,

Roanoke, has been placed on the approved list for residences in ophthalmology, by the Council on Medical Education of the American Medical Association, according to recent announcement.

The American Congress of Physical Therapy

Will hold its twentieth annual scientific and clinical session September 1 to 5, inclusive, at The Mayflower, Washington, D. C. The mornings will be devoted to the annual instruction course, and the afternoons and evenings to the scientific and clinical sessions. The seminar and convention proper will be open to all physicians and qualified technicians. All the phases of physical medicine will be covered in the general program, including a special symposium on poliomyelitis. The program will be of interest to the general practitioner as well as to the specialist in physical therapy. For information concerning the seminar and preliminary program of the convention proper, address the American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago, Illinois.

At the same time the twenty-fifth annual meeting of the American Occupational Therapy Association will be held at The Mayflower. A combined meeting will be held on Wednesday, September 3. For information concerning the Occupational Therapy Association meeting, address Mrs. Meta R. Cobb, 175 Fifth Avenue, New York City.

Dr. MacNider Receives Kober Medal.

At the recent meeting of the Association of American Physicians, the Kober Medal was awarded to Dr. William de Berniere MacNider, Kenan Professor of Pharmacology in the University of North Carolina.

The Kober Medal was established some fifteen years ago by Dr. Kober, an eminent person at Georgetown University, to emanate from Georgetown University, and be given through a recommendation by the Council of the Association of American Physicians to an individual who has made an outstanding contribution in medicine or in public health. The medal has been awarded in previous years to Dr. Simon Flexner, William H. Welch, Nogouchi, Minot, Whipple, Abel, Richards and General F. F. Russell, of the School of Public Health of Harvard University. Next year the award is to be made to Dr. D. D. Van Slyke, of the Rockefeller Institute Hospital.

Doctors and Defense.

Among the health threats aggravated by military conditions, syphilis and gonorrhea rank high—in the World War only below battle casualties and influenza. Any attack against venereal disease must involve an understanding on the part of the public, the individual concerned, and above all, by the physician. Two new popular educational folders of the Public Health Service are aimed at these objectives:

Venereal Disease and National Defense (VD Folder No. 7)—Outlines the important elements of the Army-Navy-public health venereal disease control agreement as it relates to community action.

The Doctor Says (VD Folder No. 4)—Points up the importance of blood tests and physical examinations before marriage and stresses the vital role of the private practitioner.

Copies may be obtained by direct order to the Superintendent of Documents, Washington, D. C., for $1 per 100 copies, and $7 per 1,000.

The Leslie Dana Gold Medal,

Awarded annually for outstanding achievements in the prevention of blindness and the conservation of vision, will be presented this year to Dr. Arnold H. Knapp of New York City, it is announced by the National Society for the Prevention of Blindness.

Dr. Knapp is editor-in-chief of the *Archives of Ophthalmology* and professor emeritus of ophthalmology in the Columbia University College of Physicians and Surgeons. He has been the recipient of many honors in recognition of outstanding ability.

Dr. Wortley F. Rudd,

Dean of the School of Pharmacy of the Medical College of Virginia, was the recipient of the honorary degree of Doctor of Science at the commencement exercises of the University of Maryland, early in June.

Dr. T. S. Ussery.

Recently of Norton, has located in Leesburg where he will be engaged in practice.

Dr. and Mrs. W. Fitzgerald Cavedo

Recently returned to their home in Richmond after a stay in New York City where Dr. Cavedo took a special course in obstetrics and genecology at the New York Polyclinic Medical School and Hospital.

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Dr. Paul R. MacFayden, Jr.,

Class of '29, University of Virginia, who has recently been engaged in health work at Concord, N. C., has been transferred to Richmond County, N. C., with headquarters at Rockingham.

Changes in Field Personnel of State Health Department.

Dr. John G. McNiel has been appointed Health Officer of Bristol-Washington Health Department, with headquarters at Bristol, succeeding Dr. James M. Suter, who has been called to military duty. Dr. McNiel has just returned from Johns Hopkins where he completed a postgraduate course in public health.

Dr. Paul W. Bowden, who has just completed his postgraduate work at Johns Hopkins, has been appointed Health Officer of Charlotte County, succeeding Dr. W. P. Terry, who has been called to military service.

Dr. T. F. McGough has been transferred from Northampton County and appointed Health Officer of Pulaski County at the resignation of Dr. Allen W. Lane.

Dr. William Y. Garrett, former Health Officer of Northampton County and who has been studying at Johns Hopkins for the past nine months, again has been appointed Health Officer of Northampton County.

Dr. William M. Moir has resigned as Health Officer of Smyth County and Dr. W. W. Griggs, who also has completed his postgraduate work at Johns Hopkins, has been appointed to succeed him.

Board of Health of Richmond.

In order to coordinate the Public Health Activities of the City of Richmond, the Mayor has appointed a Board of Health composed of Dr. Wm. H. Higgins, chairman; Dr. Fred Fletcher, Dr. Emily Gardner and Robert Sycle. The chief functions of this Board are to nominate a Commissioner of Health, and an Epidemiologist and to act in an advisory capacity to these officers in all matters pertaining to the health of Richmond.

Pending these appointments the Board is supervising the activities of the various branches of the Health Department and is being ably assisted by Dr. R. M. Wilson, who is serving as active Epidemiologist.

Dr. Millard C. Hanson, of Pittsburgh, a former Health Officer of Toledo, has been appointed Commissioner of Health of Richmond, and will enter upon his new duties on August 1st. He will be the city's first full-time health officer since 1924.

Dr. James L. Davis,

Class of '36, University of Virgina, who has been practicing for sometime at Thacker Mines, W. Va., has located in Waynesboro.

The Holland-Rantos Company

Have been appointed exclusive distributors for Rantex, the newest development for surgical masks and caps—a patented fibre product, insoluble in live steam, boiling water or common solvents. The masks and caps are exceptionally cool, comfortable, light, and free from irritating lint or yarn. They are inexpensive enough to be discarded after a single use, yet can be autoclaved or sterilized. The masks are shaped to fit the face; the caps are well tailored, and they are already being used in many of the larger hospitals.

Dr. E. P. Ambrose,

Recently of Christiansburg, where he was connected with the New Altamont Hospital, is now located in Dublin where he is working for Mason and Hanger Company, the New River Ordnance Plant.

Dr. R. Finley Gayle, Jr.,

Richmond psychiatrist and a member of the State Hospital Board, has been elected to membership in the American Neurological Association, whose membership is limited to about one hundred and fifty for the whole country. Other Virginia members are Drs. Beverley R. Tucker and C. C. Coleman of Richmond and Dr. David C. Wilson of Charlottesville.

G. D. Searle & Company,

Well-known pharmaceutical manufacturers of Chicago, are building new laboratories and plant which will increase their present quarters nearly three times. The building will be of modern streamlined design and will be fitted out with the most modern equipment devices and apparatus known to the sciences of pharmacy and chemistry. Physicians are invited to visit and inspect these laboratories at any time.

Dr. William R. Hill,

Class of '34, University of Virginia Medical School, is locating in Richmond, July 1, where he will be associated with Dr. A. L. Herring for the practice of general surgery, with offices at Grace Hospital. Dr. Hill interned at the University Hospital and has since been connected with the surgical de-

partment of that institution. For the past two years he has been an instructor in surgery in its medical school.

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia and are available to our readers, the only cost being return postage:

Carroll, P. L.—Atlas of the frog.
Chandler, A. C.—The eater's digest.
Ford, W. W.—Bacteriology.
Himes, N. S.—Your marriage.
Hoskins, R. G.—Endocrinology.
Leriche, R.—The surgery of pain.
Lewis, N. D. C.—Short history of psychiatric achievements.
Menninger, K. A.—The human mind.
Menninger, K. A.—Man against himself.
Shepard, H. H.—Chemistry and toxicology of insecticides.

Wanted—Medical Officers, Nurses, Technicians.

As part of the National Defense Program, the U. S. Civil Service Commission, Washington, D. C., announces a need for medical officers, nurses for hospitals and in public health work, medical technicians and laboratory workers. Requirements for these positions have been amended in some instances, so that persons interested in any of the above are urged to send their applications to the Commission's Washington office. Further information and application forms may be obtained at any first- or second-class post office or from the Commission.

No written examination now required for nurses.

Good Practice for Sale.

If I can sell my practice and residence, I will retire on account of age and turn office and everything over to buyer. This is in a good town of about 5,000 inhabitants and a good country to serve. Only two other physicians. A young to middle-aged man could easily make four to six thousand dollars a year. Would also consider exchange for a small farm.

If interested, address No. 155, care VIRGINIA MEDICAL MONTHLY, 1200 East Clay Street, Richmond. (*Adv.*)

X-Ray Unit For Sale—

Complete radiographic and fluoroscopic outfit, including all darkroom equipment. Reasonable. Owner called in military service. Address "X-Ray", care VIRGINIA MEDICAL MONTHLY, 1200 East Clay Street, Richmond. *(Adv.)*

Obituary Record

Dr. William Tell Oppenhimer,

For many years a widely known and popular surgeon of Richmond, died June the 11th, at the age of eighty years. Upon completion of his academic education, he studied medicine at the Medical College of Virginia, from which he graduated in 1881, and lated studied at the University of New York. He began practice in Richmond in 1885 and for a number of years was president of the old Richmond Board of Health. He was also chief surgeon for the Richmond, Fredericksburg and Potomac and for the Chesapeake and Ohio Railways, a member and former president of the Richmond Academy of Medicine, and affiliated with many other organizations. He joined the Medical Society of Virginia in 1886. He is survived by his wife, and two children, a son, Dr. W. T. Oppenhimer, Jr., having died just a few weeks ago.

Dr. Frederick M. Brooks,

One of the oldest physicians of Virginia engaged in active practice, died June the 21st at the home of a patient he was attending. Dr. Brooks was born in Fairfax County eighty-two years ago last December. Upon completion of his medical course at the University of Pennsylvania in 1883, he returned to his native county and had been practicing there ever since. He had held positions of importance in his community, having been president of the National Bank of Fairfax for more than twenty-five years, and for ten years chairman of the county school board. He was a charter member of the Fairfax County Medical Society and had been a member of the Medical Society of Virginia for fifty years.

Dr. Thomas David Jones,

Popular pediatrician of Richmond, died on June the 12th, after an illness of several months. He was sixty-two years of age and a graduate of the Medical College of Virginia in the class of 1906. He later took postgraduate work in Boston and New York. Dr. Jones had practiced in Richmond for thirty-five years and at the time of his death was assistant professor of pediatrics at the Medical College of Virginia. He was for several years secretary-treasurer of the Richmond Academy of Medicine, first vice-president of the Medical Society of Virginia in 1926, and a member of several pediatric societies, in all

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of which he took an active part. He is survived by his wife and four sons, one of them being Dr. John Paul Jones of this city.

Dr. Rollie T. Akers,

Aged 83, dean of Floyd County physicians, died at his home in Alum Ridge, June 16. Dr. Akers was a pioneer in his profession in Alum Ridge and served his community faithfully for over half a century. He has been a member of the Medical Society of Virginia for many years. Dr. Akers was also a minister of the Church of the Brethren, a County School Board and Board of Health member, and a bank director. His wife and five sons, one of whom is Dr. Waller C. Akers of Stuart, survive him.

Dr. Franklin McCue Hanger,

For many years a prominent specialist of Staunton, died June the 17th, after a long illness. He was a native of Augusta County and seventy-nine years of age. His medical education was received at the University of Virginia from which he graduated in 1883. Dr. Hanger was a former president of the Virginia Society of Oto-Laryngology and Ophthalmology and had been a member of the Medical Society of Virginia for nearly half a century. He is survived by three sons, one of them being Dr. Franklin M. Hanger, Jr., of New York City.

Dr. Llewellyn Powell,

For many years a prominent physician of Alexandria, died March the 13th, after having been in bad health for some time. He was a native of Alexandria and sixty-two years of age. Upon completion of his academic education, Dr. Powell took up the study of medicine at George Washington University, Washington, graduating in 1904. He was for sometime city coroner of Alexandria, on the consulting staff of the Alexandria Hospital, and had been a member of the Medical Society of Virginia since shortly after starting to practice his profession.

Dr. David Oswald Foley,

Mount Jackson, well known physician in the Valley of Virginia for many years, died at the Rockingham Memorial Hospital on April the 24th, death being due to angina pectoris. Dr. Foley was born in Fauquier County in 1871 and received his medical education at the University of Maryland, from which he graduated in 1896. He had been a member of the Medical Society of Virginia since 1905.

Dr. Percy Edwin Lilly,

Kilmarnock, died suddenly on June 15th from a heart attack following a brief illness. He was a native of Baltimore and sixty-three years of age. Dr. Lilly graduated in medicine from the University of Maryland, Baltimore, in 1901. He moved to Brydton about thirteen years ago, and had been at Kilmarnock for the past year. He was president of the Northern Neck Medical Society and a member of the Lancaster-Northumberland Advisory Board for the selective service. He is survived by his wife.

Dr. Otho Perry Campbell,

Who practiced for a time at White Stone but was more recently in the Army and stationed at Camp Blanding, Fla., died in Richmond on June 2nd, where he had come to attend commencement exercises of his alma mater. Death was an after effect of pneumonia, from which he recently suffered an attack. Dr. Campbell was twenty-nine years of age and a graduate of the Medical College of Virginia in the class of '37. He was a son of Dr. and Mrs. Clarence Campbell of Sparta.